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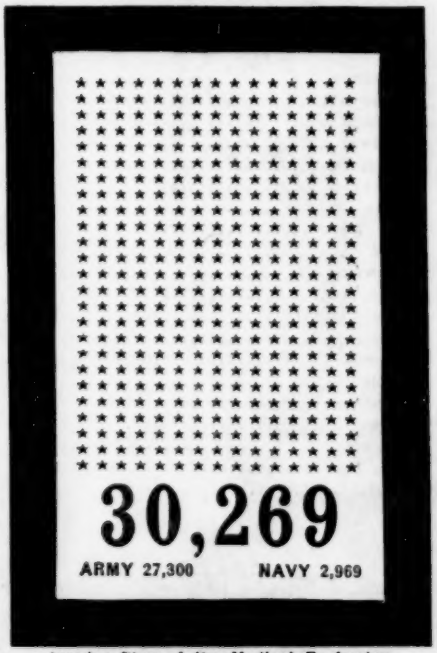

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INFANTILISM AND OTHER HYPOPLASTIC CONDITIONS OF THE UTERUS*

EMIL NOVAK, M.D.

BALTIMORE

Infantilism of the female genital organs may be only a local manifestation of general infantilism (infantilismus universalis). More frequently, however, it is observed in women who, aside from the genital organs, present no recognizable defects in development, and who, for that matter, may be unusually well developed. It is this local form of infantilism (infantilismus partialis or genitalis) with which we are concerned in this paper. Its very great frequency can be attested by every gynecologist, although I know of no figures bearing on this point. The clinical importance of the condition rests chiefly on two considerations: (1) the frequency with which it is associated with aberrations of the menstrual function, and (2) the fact that it often seems to constitute the anatomic basis for sterility.

Strictly speaking, the term "infantile uterus" should indicate that the organ resembles that normally found in the infant. The development of the uterus may, however, be arrested even as early as in the fetal stage, while on the other hand, the inhibition of development may not come until the prepuberal epoch. No practical advantage is to be derived from making very fine distinctions along this line, since the difference between the uterus of the fetus, the infant, and the child up to the prepuberal age is not nearly so great as one might be inclined to expect. Very frequently, the differentiation between the various types is not possible clinically. For this reason, it is perhaps not worth while to criticize the common custom of designating as an "infantile uterus" any uterus that presents noteworthy defects of development.

The observations herein noted are based on the study of twenty-six uteri that were removed at necropsy from subjects varying in age from the twelfth week of fetal life to the fourteenth year of postnatal life. For supplying me with a portion of this material, I am indebted to the members of the Pathological Staff of the Johns Hopkins Hospital. The uteri in the series were derived from nine fetuses, and seventeen infants and children of various ages. Among the fetuses, the age of one was placed at 12 weeks, of three at 5 months, of two at 6 months, and of three at between 8 and 9 months. Of the babies and children, two were stillborn at term; one was 5 days old; one, 10 days; one, 2½ months; two, 4 months; one, 6 months; one, 8 months; one, 9 months; one, 13 months; one, 15 months; one, 2 years; one, 2½ years; one, 4 years; one, 9 years, and one, 14 years. In studying this material, special attention has been given to the position of the uterus, its relation to the other pelvic organs, its size, its form, the relation existing between its different portions, and the presence or absence of flexions. For microscopic study, sagittal sections of the uterocervical canal have been found most satisfactory. The tubes and ovaries have been studied in most of these cases, but with the results of this study we are not concerned in this paper.

THE UTERUS IN FETAL LIFE

The characteristics of the uterus during the early stages of fetal life are well shown in Figure 1, which represents a sagittal section of the pelvis of an embryo of 76 mm. in length. This corresponds to an age of about 12 weeks. This specimen I was enabled to study through the kindness of Dr. George L. Streeter, acting director of the Carnegie Institute of Embryology. It can be seen that the uterine canal scarcely permits of differentiation into cervix and corpus. It is merely a straight tube of uniform caliber, although the upper sixth or so obviously represents the future fundus. The high position of the uterus at this age can be appreciated by observing that it is almost entirely above the level of the symphysis, that is, that it is essentially an abdominal organ, like the bladder at this stage. It is uncommon to see either sharp anteflexion or retroflexion at this period, although a moderate antecurvation of the uterus (uterus antecurvatum) is very frequent — indeed, it may be said to be the rule in the later stages of fetal life.

Throughout the whole fetal epoch a preponderance of the cervix over the corpus uteri is noteworthy. The well known characteristics of the epithelium in the different portions of the adult canal do not become noticeable until the fetal development is far advanced. As in the adult, the cervix is then lined by tall, slender "picket" epithelium, while the corpus is covered by cells of a shorter and broader columnar type. The time of the appearance of gland elements is quite variable. In some uteri they are as well developed, especially in the cervix, in the last period of fetal life as they are in others during the fifth or six year of extrauterine development. Toward the very end of the fetal phase, the uterus exhibits a rather striking acceleration of growth, affecting the fundus as well as the cervix. After the birth of the child there is a

* From the Gynecological Department of Johns Hopkins University.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

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rather pronounced shrinkage or involution of the fetal uterus, as will be discussed later.

THE UTERUS OF INFANCY AND CHILDHOOD

These two epochs are placed together because of the fact that, to all intents and purposes, the uterus is a stationary organ throughout both periods. It would be difficult to distinguish, either from size or from shape, between the uterus of the child of 1 year and the child of 8 or 9 years. As compared with the fetal uterus, there is perhaps a lesser degree of disproportion between the cervix and the corpus, the latter having become a little longer and somewhat more clearly differentiated (Fig. 2). The occurrence of sharp anteflexion, and, to a less extent, of retroflexion, is far more common during this stage than during fetal life. The explanation of this fact will be discussed under another heading.

THE UTERUS AT PUBERTY

With the awakening of the ovaries at puberty comes a very remarkable stimulation of uterine growth. Within a short period, the uterus may almost double its size. A comparison of two of my specimens, one representing the uterus of a 9 year old child, and the other that of a girl of 14, gives a vivid impression of the change in uterine size and form that puberty brings with it. The 9 year old girl's uterus is 35 mm. long, while the uterus of the 14 year old girl, who had just commenced to menstruate, measures 57 mm. in length. There is relatively little difference in the length of the two cervices, one measuring 22 mm. and the other 27 mm. The body of the 14 year old uterus, however, is more than twice the length of that of the 9 year old organ, measuring 30 mm., while the latter is only 13 mm. long. In addition, there is a very striking difference in the width and in the thickness of the walls of the two uteri. The characteristics of the 14 year old uterus are those of the adult organ—the well developed convex fundus which is at least equal to the cervix in length, the thick musculature, and the regular monthly cycle of histologic changes in the endometrium (Fig. 3).

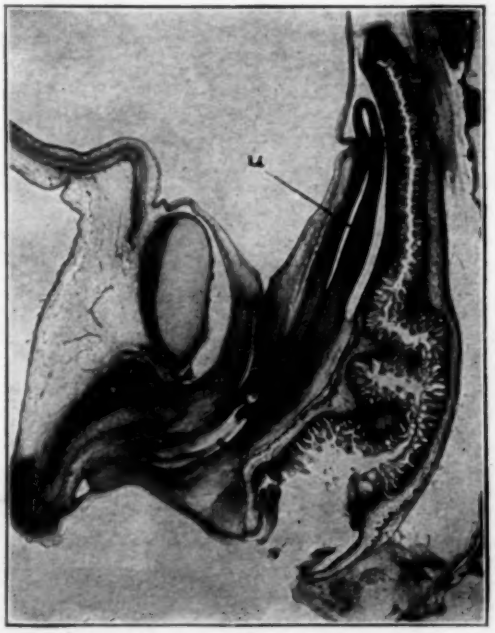

Fig. 1.—Sagittal section of pelvis of 12 weeks old fetus, showing characteristic fetal uterus (u), made up almost entirely of cervix.

THE QUESTION OF THE ISTHMUS UTERI

The usual division of the uterus into the corpus uteri and the cervix uteri has much to commend it, especially from the point of view of simplicity. On the other hand, there are some advantages in the less popular plan suggested by Aschoff in 1906,[5] of considering the uterus to be made up of three segments, namely, the corpus, the cervix and the isthmus uteri. Certainly the isthmus possesses distinctive histologic characteristics which entitle it to separate consideration, and which, as I shall show, are of no little significance in the explanation of certain physiologic and pathologic occurrences.

From an obstetric standpoint, this segment of the uterine canal is of great importance by reason of the fact that the lower uterine segment of the parturient uterus is derived from it. A bitter controversy, stretching over a number of years, and still unsettled, has been waged among German obstetricians as to whether the lower uterine segment is to be looked on as derived from the cervix alone or from both the cervix and the corpus uteri. With this discussion we shall not here concern ourselves, except to say that the weight of evidence points to the correctness of the latter view. The problem is made much simpler if we apply to it the three segment conception of the uterus, that is, if we distinguish, in addition to the cervix and corpus, a third connecting segment, or isthmus. The os internum anatomicum, which is the upper limit of the isthmus, corresponds to the contraction ring of Braune (Bandl), while the lower limit of the lower uterine segment is the os internum histologicum. In other words, according to this division, the isthmus of the nonpregnant uterus exactly corresponds to the lower uterine segment of the parturient woman.

The gynecologic importance of the isthmus rests principally on the fact that congenital flexions of the uterus probably always take place at the isthmus. Furthermore, although this cannot be stated with the same support of histologic study, it is probable that the acquired flexions of later life also occur at the same segment. Its designation by Aschoff as the *Scharnier* or "hinge" of the uterus would thus seem to be justified. It is common to observe flexion of the uterus, usually in the form of anteflexion, in very early life. In every such anteflexed uterus that I have been able to study microscopically, the angle of flexion has been in the middle of the isthmus and not at the internal os, as has so generally been believed. Opportunities for study of congenital anteflexion of the uterus in adult women are scarce, as such uteri are rarely removed at operation, and necropsy material of this sort is hard to obtain. Indeed, I know of but one observation along this line, that of Hegar.[6] The uterus was removed by vaginal hysterectomy from a girl of 24, on account of severe dysmenorrhea that had resisted all other forms of treatment. The uterus was sharply anteflexed—as Hegar terms it, "hyperanteflexio uteri congenita." Examination showed three well marked segments with the histologic characteristics already described. The angle of flexion was within the limits of the well marked isthmus. Congenital retroflexions are far less frequent than anteflexions. No example has been seen in my series. There can be no doubt, however, that, as with anteflex-

5. Aschoff: Ztschr. f. Geburtsh. u. Gynäk., 1906, **58**, 328.

6. Hegar: Beitr. z. Geburtsh. u. Gynäk., 1909, **14**, 141.

ions, the point of angulation is in the isthmus. The same may be said of lateroflexion, slight degrees of which are very common in fetal and infantile uteri.

Flexions of the uterus are far more commonly observed in the uterus of the infant or young child than during fetal life. I believe that this is due to the fact that in the fetal organ the isthmus is practically undeveloped, while, on the other hand, in the infantile uterus, it forms a large and important segment. It is easy to see how abnormal length and flexibility of the uterine isthmus may result in the production of flexion of one form or another. Once the uterus becomes angulated, the flexion must be looked on as permanent. After the age of puberty the isthmus becomes small and more or less vestigial, so that it is probable that acquired anteflexion rarely occurs during this epoch.

The point that I should like to reemphasize is that it would be of value to the gynecologist to think of the uterus as a composite organ, in the sense that it is made up of three separate segments. At various periods of life one or the other of these segments predominates in size and perhaps in function. Each segment apparently has its own function, and each seems to be under the control of a different endocrine influence. Such a conception as this would seem to be more in accord with fact and more conducive to fruitful observation than the custom of looking on the uterus as merely an organ entity in itself, going through various physiologic and pathologic changes *en masse,* as it were.

Fig. 2.—Sagittal section of pelvis of infant of 9 months. The division of the uterus into cervix and corpus is clear, the former still greatly predominating. Note also the anteflexion of the uterus.

TYPES OF UTERINE HYPOPLASIA

Throughout the consideration of this subject it is important to remember that hypoplasia may manifest itself in either one of two principal ways — an arrest of growth or an arrest of differentiation. Perhaps the best analogy to bear in mind in this connection is furnished by the striking work of Gudernatsch[8] on the effects of thyroid and thymus extracts on tadpoles. On the administration of thymus, the tadpoles grew to very large size, but still remained tadpoles. Feeding with thyroid, however, produced an altogether different result—the tadpoles developed rapidly into frogs. Under normal conditions, the growth and differentiation of the uterus proceed more or less hand in hand. Under certain conditions, however, it would appear that one may lag far behind the other, so that we may see a uterus equal in size to the normal adult organ, and yet having the form and segmental proportions of the infantile uterus. On the other hand, in those cases in which growth seems to have been retarded, while differentiation has proceeded normally, a very much undersized uterus may have the form of the normal mature organ.

The Uterus Foetalis. — The development of the uterus may be arrested in the fetal, or embryonic, stage, in which case it possesses the characteristics already described for the fetal uterus. This so-called uterus foetalis (uterus embryonalis, uterus rudimentarius) is made up almost entirely of cervix, the fundus being extremely rudimentary. As a matter of fact, it may be almost impossible to distinguish any differentiation into two segments. The uterocervical canal is either straight or slightly antecurved. Anteflexion is uncommon at this stage. The characteristics of this type of uterine hypoplasia are well shown in Figure 4.

The Uterus Infantilis. — This term, strictly speaking, should be restricted to the uterus whose development has been arrested during the period of infancy or childhood, for as has been shown, the infant uterus does not differ materially in form from that of the child up to the age of puberty. The cervix still definitely predominates over the corpus, but the two are now clearly differentiated. The fundus is much better developed than in the infantile uterus, and its walls are also somewhat thicker. It still lacks, however, the broad convexity that is characteristic of the mature uterus. Anteflexion is a common but by no means invariable finding, the angle of flexion being always within the limits of the isthmus (Fig. 5). The anteflexion is usually of the cervicocorporeal type, the small conical cervix pointing downward and forward in the axis of the vagina, while the fundus is bent forward on the cervix, often at a very acute angle. Hegar divides infantile uteri into two principal groups: 1. Those in which the uterus possesses the infantile characteristics above enumerated, especially as concerns the predominance of the cervix, but in which the organ is of normal size. This type he calls "the uterus infantilis nonhypoplasticus." 2. Those in which the size and shape of the uterus are infantile, the so-called "uterus infantilis hypoplasticus."

The Uterus Subpubescens. — In some respects the most interesting forms of uterine hypoplasia are those

8. Gudernatsch: Am. Jour. Anat., 1914, **15**, 431.

of mild degree—those in which the inhibition of development does not assert itself until the prepuberal period. The difference between the uterus of this type and the normal pubescent organ is often slight, so that the designation of this group as "subpubescent" would seem fitting. When the ovarian influence, so important at puberty, is tardy in its appearance, the fundus remains undeveloped; that is, there is a persistence of the infantile type already described. In other cases, again, the anatomic defect of the fundus may be very slight, so slight as to be scarcely appreciable clinically. All possible grades of hypoplasia may be distinguished between these two extremes. As in the infantile group, anteflexions are very common and are usually of the cervicocorporeal variety (Fig. 6).

CLINICAL CHARACTERISTICS OF UTERINE HYPOPLASIA

Both of the two great functions of the uterus—menstruation and reproduction—are profoundly influenced in the various forms of uterine hypoplasia. As regards the effect on menstruation, we may distinguish two groups of cases. In one type, which may be spoken of as the "amenorrheic," the predominant symptom is amenorrhea or scanty menstruation, with little or no dysmenorrhea. In the second group, on the other hand, the conspicuous symptom is dysmenorrhea, the amount of flow being most frequently scanty, but sometimes being normal or even excessive. This second type may be designated as the "dysmenorrheic." No sharp dividing line can, of course, be drawn between the two groups, the symptoms often overlapping to a certain degree.

Fig. 3.—The uterus of a girl of 14, showing the great development of the corpus uteri at puberty. Note the convexity and the thick walls of the fundus.

The amenorrheic syndrome is constant in the extreme forms of uterine hypoplasia, such as uterus rudimentarius. Furthermore, it is often observed with the infantile uterus. On the other hand, menstruation may be normal, or perhaps even excessive, in those cases in which the fundus is only slightly subnormal. Secondarily, of course, amenorrhea may be observed even in large, well developed, and perhaps multiparous uteri, as in the well known Fröhlich's syndrome, which is due to hypopituitarism. Were it possible to exclude in any way the influence of the various extragenital endocrine bodies, which, of course, is not the case, the development of the uterine body could be looked on as, in a general way, an indication of ovarian activity. Certainly, as has already been emphasized, it is the fundus and not the cervix which is functionally linked with the ovaries.

Dysmenorrhea is observed far more frequently in the milder degrees of hypoplasia than in very rudimentary uteri. The reverse is the rule with amenorrhea, which is always seen with the rudimentary type of uterus, but is often lacking in the slightly subnormal. Always remembering, of course, that we are dealing with only the primary types of amenorrhea and dysmenorrhea, the conclusion seems warranted that, as a symptom, amenorrhea is indicative of a greater degree of hypoplasia than is dysmenorrhea.

The clinical manifestations of congenital hypoplasia may be conveniently studied under two headings: (1) symptoms associated with the menstrual function, and (2) those associated with the reproductive capacity.

The Menstrual Symptoms.—Retarded Puberty: In many cases of uterine hypoplasia, as observed in the adult woman, inquiry reveals that menstruation was inaugurated at a period much later than usual. Instead of appearing at the age of 13 or 14 years, the function in many of these cases is established perhaps as late as 17 or even 19. If the age of puberty is very much retarded, and especially if retardation of the menstrual function is associated with absence of such secondary sex characteristics as development of the breast or the appearance of hair over the mons and in the axillae, congenital hypoplasia is usually only a local manifestation of a general underdevelopment, the result of a more or less profound endocrine disturbance.

Amenorrhea or Scanty Menstruation: Menstruation is much more likely to be deficient than excessive in cases of uterine hypoplasia. This, as has already been emphasized, is especially true of the more advanced grades. I have reviewed the histories of sixty cases from this point of view. The cases in this series included uteri that were described by such terms as "infantile," "small and anteflexed," etc. It was probably made up chiefly of uteri of the infantile and subpubescent groups. A subdivision was made into those in which the menstrual flow was scanty and those in which it was not deficient, that is, those in whom, as far as could be judged from the patient's own statement, the amount of flow was either moderate or profuse. In thirty-eight cases menstruation was scanty, in twenty-two it was either moderate or excessive. The findings in this small series of cases, in spite of the crudity of the method of study, are nevertheless in accordance with general experience. In the marked cases of uterine hypoplasia, in which amenorrhea is practically always seen, there is usually associated with it a greater or less degree of constitutional change, most commonly adiposity. This syndrome—sexual hypoplasia and obesity—is the same as that which is so characteristic of the acquired condition, which is now so clearly recognized as "adiposogenital dystrophy," or Fröhlich's syndrome. Like the latter, it is probably due to a hypopituitarism, one condition being congenital and the other being acquired. In the less severe forms of hypoplasia, menstruation may not be altogether absent, its rhythm and amount being in a general way indicative of the degree of hypoplasia of the uterus. As to the cause of the amenorrhea in these cases, three factors must be considered:

1. Endocrinopathies of one form or another, involving especially the ovary or the pituitary, may furnish the responsible factor.

2. The small area of the endometrial surface may explain the menstrual deficiency. Since the menstrual blood has its source in the endometrium,

it is easy to understand how a lessening of the latter may, other things being equal, lessen the amount of menstrual blood lost, just as the increase of the endometrial surface in cases of adenomyoma of the uterus may cause excessive menstrual bleeding.

3. It is possible that the anatomic defect in the uterus may be associated with a defect in the physiologic function of the endometrium. As I have elsewhere emphasized, the endometrial hyperemia evoked by the ovarian hormone is not in itself sufficient to explain the bleeding of menstruation. Such an idea would be foreign to our conception of the nature of hyperemia, which is never associated with any such wholesale exodus of blood elements from the vessels to the surrounding tissues as is seen in the course of menstruation. It seems essential to assume that some local physiologic factor in the endometrium must be responsible for the increased permeability of the blood vessels, which allows of this menstrual migration of blood corpuscles from the vessels. While little scientific evidence can as yet be brought forth to support the idea, it is possible that the amenorrhea in cases of uterine hypoplasia is due to a deficiency of this local physiologic factor.

Dysmenorrhea: The existence of even extreme grades of hypoplasia of the uterus, with the amenorrheic clinical syndrome already described, is not incompatible with perfect health and well-being. On the other hand, the milder forms of hypoplasia are often associated with spasmodic dysmenorrhea of so severe a grade as to wreck the physical and nervous constitution of the patient. As a rule, this type of menstrual pain makes its appearance a day or two before the actual onset of the flow, continuing usually until the latter is well established. It is commonly described as cramplike or colicky, differing from the congestive type of dysmenorrhea in that the latter is usually dull, aching and constant. Examination of patients suffering with spasmodic dysmenorrhea often reveals that the uterus is not only hypoplastic but also anteflexed; hence, it is not surprising that the anteflexion is usually held responsible for the menstrual pain. As a matter of fact, it was this frequent association of anteflexion and dysmenorrhea that led Mackintosh, as far back as 1836, to urge the importance of mechanical obstruction in the uterine canal as the cause of dysmenorrhea: "Nulla dysmenorrhea nisi obstructiva," as Marion Sims put it.

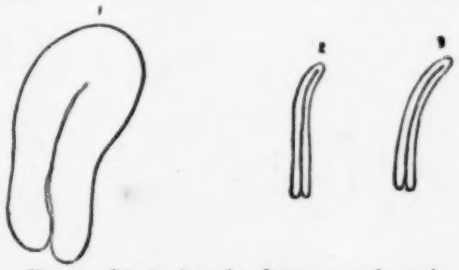

Fig. 4.—Illustrating the fetal type of uterine hypoplasia, (2) and (3), as compared with the normally developed uterus (1).

Evidence is accumulating, however, to show that the uterine flexion and the dysmenorrhea are not to be looked on in the relation of cause and effect. As many cases of primary dysmenorrhea are observed without anteflexion as with anteflexion. Furthermore, it is common to find even sharp anteflexion without dysmenorrhea. Herman[9] states that fully one half of all nulliparous women have anteflexed uteri, so that it is not at all surprising that dysmenorrhea and anteflexion often coincide. Finally, it has been shown that in dysmenorrheic women in whom there is also an anteflexion of the uterus, a probe can easily be passed into the uterine canal during the height of the menstrual pain, indicating the absence of any actual obstruction. The proof seems quite convincing that, while anteflexion and dysmenorrhea often coexist, there is no direct relationship between them.

As to what is actually the cause of the spasmodic dysmenorrhea so frequently observed in young women with defective uterine development, we are unfortunately not in a position to speak with any degree of certainty. I have elsewhere recorded studies indicating that the endometrium of hypoplastic uteri exhibits the usual menstrual cycle of histologic change seen in normally developed uteri.[10] In the paper referred to I suggested that the hypoplasia involves the uterine musculature more than it does the mucosa, and that the dysmenorrhea may be due to the inability of the endometrium at the time of menstruation to be accommodated within the undersized uterine cavity. The uterine muscle is thereby excited to cramplike contractions in an effort, as it were, to expel its own endometrium. This conception would seem to be borne out by the fact that the menstrual pain in these cases is usually relieved as soon as the menstrual flow is well established, that is, as soon as the swelling of the endometrium diminishes.

Sterility.—As to the cause of the sterility that is observed so frequently in connection with hypoplasia of the uterus, it is difficult to believe that the small size of the uterus or any histologic peculiarity of its mucosa has any important bearing on this matter. If an impregnated ovum can implant itself on the wall of the fallopian tube, which is certainly not adapted for gestation purposes, there would seem to be no anatomic reason why it should not take root in even a very rudimentary uterus; and yet this never happens. In an indirect way, at least, it can be shown that the ovaries may function normally in cases of uterine infantilism, so far as the menstrual process is concerned.[10] It would seem probable, therefore, that the bar to conception must lie within the uterus and probably within the mucosa. Since the latter is histologically normal, we must apparently explain the sterility as a manifestation of pathologic physiology, rather than pathologic anatomy.

There is now a fairly general acceptance of Fraenkel's view that the corpus luteum, in addition to its menstrual function, is also of importance in maintaining the fixation of the ovum in the early part of pregnancy. It is possible, therefore, that in these cases of genital hypoplasia this local factor in the endometrium is lacking, preventing the implantation of the ovum. Adler's work[12] indicates that the presence of this important local element, whether hormone or enzyme, is dependent on corpus luteum activity, so that, in the final analysis, sterility of this type can perhaps be explained as due to disturbances of the endocrine system.

TREATMENT

What little I shall have to say about treatment will be limited largely to comments on the methods in vogue at present. The treatment of hypoplasia of the uterus is unsatisfactory, because it cannot in the present state of our knowledge be directed to the underlying cause of the condition. As has been brought out, the

9. Herman: Brit. Med. Jour., 1909, **1**, 937.

10. Novak, Emil: Surg., Gynec. and Obst., 1915, **21**, 336.
12. Adler: Arch. f. Gynäk., 1912, **95**, 349.

defective development of the uterus in these cases is almost surely due to some form of endocrine disorder. Which of the ductless glands are concerned, what the nature of the disorder is, and how best to correct it—all these are problems still unsolved.

Organotherapy has, of course, already been resorted to by many on the slim basis of the few facts that seem fairly well established. Ovarian extracts of one form or another, either of the whole organ or of the corpus luteum alone, have been given either by mouth or hypodermically. Important as the corpus luteum is in menstruation, and valuable as its administration may be in certain menstrual disorders, I know of no evidence indicating that this structure plays any part whatsoever in the development of the uterus. As a matter of fact, developmental defects of this organ commonly arise long before puberty, that is, long before corpora lutea are found in the ovary. It seems justifiable to conclude that if organ extracts are to be given in cases of uterine hypoplasia, the ones to be chosen are extract of the whole ovary or extracts of other ductless glands that probably play an important part in the early growth of the genital canal. Pituitary extract suggests itself in this connection, as well as the still unsatisfactory extracts of the pineal and thymus bodies. Suffice it to say that this method of treatment has been carried out by various workers, with very little success. Failure does not, however, necessarily invalidate the correctness of the theories on which this treatment is based. It is far more likely to be due to the imperfection of our knowledge as to the active principles of the various ductless glands and of the technic of preparing extracts for clinical use. Much might be said in the discussing of this one point, but there is little doubt that the persistent groping of clinicians and laboratory investigators will sooner or later lead us into the light. The type of hypoplasia may be of some importance in suggesting the plan of treatment. Theoretically, ovarian extracts would seem to be indicated especially in the subpubescent group, while pituitary extracts suggest themselves in the treatment of the fetal and infantile type of uteri.

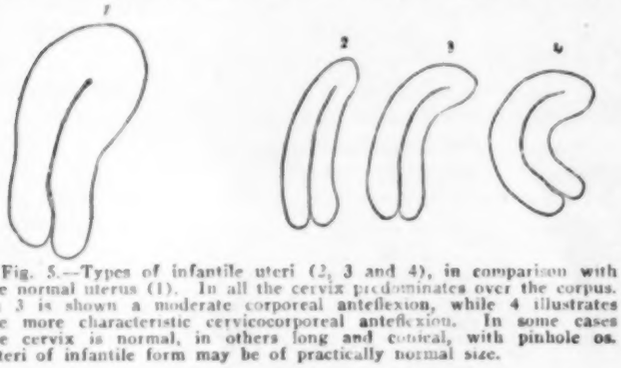

Fig. 5.—Types of infantile uteri (2, 3 and 4), in comparison with the normal uterus (1). In all the cervix predominates over the corpus. In 3 is shown a moderate corporeal anteflexion, while 4 illustrates the more characteristic cervicocorporeal anteflexion. In some cases the cervix is normal, in others long and conical, with pinhole os. Uteri of infantile form may be of practically normal size.

Aside from this as yet undeveloped plan of treatment by organ extracts, the treatment of uterine hypoplasia presents a more or less composite problem, being really directed to the treatment of a whole group of symptoms and allied disorders, especially amenorrhea, dysmenorrhea and sterility. One or more of these clinical manifestations usually brings the patient to the physician for treatment, as without them she would be ignorant of the existence of the hypoplasia.

Unfortunately, amenorrhea is often treated by practitioners of medicine as if it were a disease in itself, rather than a mere symptom. Unlike excessive menstrual bleeding, the cause of amenorrhea is far more frequently constitutional than local. In the amenorrhea of uterine hypoplasia, however, we have to deal with a local anatomic defect in the genital system, although this is quite possibly secondary to a constitutional endocrine disturbance. At any rate, little benefit can be expected from hematinics and emmenagogues, so often prescribed in these cases. The administration of the latter is especially to be decried. How a drug supposedly causing merely a pelvic hyperemia can be expected to establish such a regularly recurring physiologic process as menstruation, I have never been able to understand.

As for the treatment of the dysmenorrhea so frequently associated with hypoplasia of the uterus, this also must be looked on as leaving much to be desired. During the actual attack, treatment is, of course, directed to the relief of the menstrual pain. The two drugs most effective for this purpose are the two that for obvious reasons are especially to be avoided, morphin and alcohol. Taken all in all, the drug that has in my experience given the best results in most cases—other than the two I have just mentioned—is atropin. This method of treatment, which I have described elsewhere,[13] is based on very rational principles, and its results, while not constant, are better than those yielded by any other drug treatment of which I know.

Not infrequently, the aid of surgery is invoked in the effort to relieve the intense suffering of primary dysmenorrhea. The operation most commonly done is that of dilatation of the cervix. Formerly, this was, as a rule, accompanied by curettage, but now, happily, it is seldom that we scrape away the perfectly normal endometrium which is practically always found in these cases. There is neither reason nor advantage in doing so. Holden's study[14] of the results of dilatation of the cervix in ninety-five cases of primary dysmenorrhea treated in the Gynecological Clinic of Johns Hopkins is far from encouraging. Forty per cent. of the patients were relieved for as much as one year, 7 per cent. of these suffering a later recurrence; 30 per cent. exhibited slight or temporary improvement, while the remaining 30 per cent. were in no way benefited by the operation. These figures, I believe, will about represent the experience of most gynecologists.

Fig. 6.—Types of subpubescent uteri, showing only slight differences in size and form from normal uterus (1). In 3 and 4 are shown, respectively, corporeal and cervicocorporeal anteflexion. Drawings in Figures 4, 5 and 6 by Miss Ethel Norris.

The employment of the stem pessary, so enthusiastically advocated by Carstens and others, is based on the idea that the pessary, by causing expulsive efforts

13. Novak, Emil: The Atropin Treatment of Dysmenorrhea, The Journal A. M. A., Jan. 9, 1915, p. 120.
14. Holden: Am. Med., 1905, **10**, 776.

on the part of the uterine muscle, exercises the latter and causes an increase in the development of the uterus. This plan of treatment is not without danger, as I myself have seen several cases of troublesome endocervicitis following the use of the stem pessary. To judge from the reports in the literature, however, the results are better than those following simple dilatation. As for the various plastic operations on the cervix that have at different times been advised for the relief of dysmenorrhea, such as those of Sims, Dudley, Pozzi, or that recently described by Frank, I can see absolutely no excuse for their performance. All of them are based on the erroneous impression that the dysmenorrhea is due to cervical stenosis; and all of them should, therefore, be abandoned.

Much of what has been said by way of criticism of the present-day treatment of dysmenorrhea applies also as regards the sterility so frequently observed in the same group of patients. Dilatation with or without the subsequent use of the stem pessary, as well as plastic operations of one form or another, have been resorted to in an effort to relieve the sterility, with results even less gratifying than in the case of the dysmenorrhea. The reason for the failure of this method of attacking the problem lies in the fact that the sterility, as has already been discussed, is most likely due to a physiologic defect in the endometrium, that is, the absence of some factor essential to the implantation of the ovum. Here again we hark back to disorders of the internal secretory system as the ultimate cause. This, after all, is the conviction borne in on any one who studies this general problem, whether or not he be a ductless gland enthusiast or "faddist"—the conviction that the day will come when these very numerous cases of primary amenorrhea, primary dysmenorrhea and sterility, which are associated with uterine hypoplasia, will be successfully treated by correcting the endocrinopathy responsible for the uterine defect.

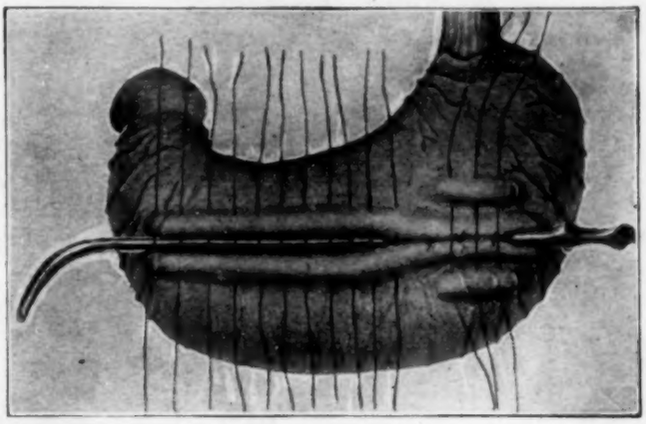

Fig. 1.—Plication of stomach; first line of sutures in place, three tied; three of second line in place.

Utility of Birth Statistics.—The enforcement of legislation for the registration of births and the creation of a sentiment among all classes for the recording of proper vital statistics would, if undertaken at the present time, place us in the position of being able during the approaching census year to measure accurately the mortality among infants throughout the country. Not only should our efforts be confined to a complete registration of births but also to the necessity of more accurate statements of the causes of death on certificates of infants under 1 year of age. Certificates bearing as a cause of death such indefinite statements as marasmus, inanition, asthenia, convulsions and prematurity should, if not tabued, at least be queried as to underlying causes. With a complete registration of births many problems now occupying the public mind can be more intelligently discussed, such as illegitimacy, comparative fecundity of various race-stocks, the effects of hazardous occupations of parents on their generative faculties, and the determination of the ages of greatest fecundity.—W. H. Guilfoy, M.D., Tr. Am. Assn. for Study and Prev. of Infant Mortality.

VISCEROPTOSIS

A NEW OPERATION FOR ITS RELIEF *

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NEW YORK

The vicious consequences of visceroptosis, both immediate and remote, are so manifest and so generally accepted by the profession that they need no amplification. The etiology is referred to congenital influences, the lack of proper early training and development, and to careless, indolent habits of standing, sitting, walking and general carriage of the body in all its attitudes. The condition per se may mechanically produce localized pain and distress and interfere deleteriously with nutrition by retention of food in the stomach and by constipation or stasis of the alvine current in its course through the intestine. The only satisfactory etiologic factor that explains the ulterior complex symptomatology is to be found, however, in the little mischief makers that generate ferments and toxins which, circulating in the blood, poison the nerve centers and the brain.

The neurologists go even further than this. They do not admit that it is necessary to await the appearance of ptosis to afford habitat for noxious bacilli, microbes or parasites — even Glénard referred to a period preceding ptosis and claimed that toxins of alcohol, fermenting food and the puerperium, of typhoid and malarial infections, traumas and even emotions of fright and chagrin, all or any one, acting through the autonomic or sympathetic nervous systems might be basic factors in causing structural changes in the viscera and their malposition in the abdominal cavity. This *a priori* theory of Glénard's has, since the establishment of the microbe theory of disease, been satisfactorily confirmed by physiologic experimentation. These structural changes cause stasis in the alvine current which, in turn, affords additional facilities for development of increased supplies of toxins; these, carried to the autonomous nerve centers, intensify in turn the deleterious changes in the viscera. Thus is established the vicious circle, or syndrome. In its complete form it includes the gastrointestinal disturbances arising secondarily in the viscera; the pains in the abdomen due to organic changes in the viscera; kinking and other distortions in their walls; pressure on the nerve ends; the referred pains in other parts of the body; the crisis, accompanied

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of sixteen case reports and four roentgenograms. The complete article appears in the Transactions of the section and in the author's reprints. A copy of the latter will be supplied by the author on request.

by nausea, vomiting and collapse; and the neuropathic mental state of the patient, with its depressions, its querulousness, its maladjustment to environment and its great susceptibility to fatigue.

The ptosis not only causes a retardation of the alvine current—a stasis—due to redundance, persistent dilatation, sharp angulation and kinks and adhesions that necessarily attend the displacement and the opposition of gravitation to the reversed direction of the current, but also subjects the vertebral ganglions and their connections to torsion, pressure and stretching, while absorption of the toxins overwhelms the sympathetic system, and perchance the brain centers as well.

TREATMENT

Four forms of treatment are to be considered and are indicated in this class of cases: (1) the skill of the internist, with all his resources to eliminate the toxins; (2) the physical culture expert with his gymnastic exercises, his postural treatment, his belts, his corsets and his high heeled shoes; (3) surgical treatment to restore normal position, relieve obstructive angulation, false adhesions, and pressure and drag on the sympathetic ganglions; and (4) neurologic treatment to relieve the depressive emotional disturbances. This does not necessarily imply four distinct specialists but, rather, one broad minded surgeon who embraces them all, and should with reasonable cooperation on the part of indicated specialists actually be able to handle the different phases of treatment in the majority of cases.

The postural, gymnastic and corset treatment is a most excellent prophylactic in early life in patients exhibiting a constitutional hereditary predisposition, what Steller calls the habitus enteroptoticus of asthenia universalis congenita, that is, patients with forward protrusion of head and chin, long arms, thin neck, narrow elongated chest, sloping shoulders, lack of adipose, flat abdomen and pot belly. A strict regimen, such as described by Reynolds and Franklin Martin, persistently carried out and continued for years will correct much and prevent more; but the rub comes in carrying the patient along to the sticking point beyond which relapses may not occur. It is a tiresome, discouraging job for both patient and physician.

When the patient has reached the stage of actual ptosis of stomach and colon, in which angulations have become obstructive and adhesions have formed, nothing can avail but surgical interference. The extreme colectomy of Arbuthnot Lane is rarely indicated unless we accept the teachings of Reed that therein lies the final efficient corrective for epilepsy. But certainly nothing is more rational than the relief of obstructive angulations, adherent kinks and painful pressure by the permanent restoration to normal position of the overstretched, tired out, devitalized structures. Many methods have been devised to accomplish this end, some of which have stood the test of time and have apparently become standardized. It is not my purpose to go into an analytic discussion of them or indulge in comparisons. My mission is to present a method which I have evolved in dealing with cases of visceroptosis. It has been put to a sufficient test, I think, to make it worthy of consideration.

My first experience was gained in 1889:

Case 1.—A woman about 25 years of age, an expert stenographer and typewriter, a nervous dyspeptic and neurasthenic wreck, had a ptosed and dilated stomach. After treating her medicinally and washing out her stomach morning after morning before breakfast for weeks and months without much improvement, she announced to me one day that she was tired of treatment and ready for the operation I had discussed with her some weeks previously. Accordingly she went to the Polyclinic Hospital and was made ready for the operation. Through a free incision above the umbilicus, I plicated the anterior wall of the stomach, parallel to the long axis. Just above this line two sutures were passed perpendicular to it through the peritoneal and muscular wall of the stomach. Both ends of each suture were then carried up through the peritoneum and fascia of the abdominal wall, but not the skin, and made to appear, each on its own side, in the upper angle of the abdominal wound. After the closure of the peritoneum the two ends of each suture were tied, cut short and buried in the closure of the abdominal incision. I had heard Dr. Emmet tell many a time, during my service at the Woman's Hospital, of suspending the woman slaves of the South between trees in hammocks with their heels higher than their heads for the relief of prolapse of the uterus. It occurred to me that this posture would assist in taking the strain off the stomach sutures, and when the patient was put to bed, the foot of the bed was elevated by a chair placed under the foot, thus securing what is familiarly known as the Trendelenburg posture This was maintained for two weeks, when the bed was gradually lowered to normal at the end of three weeks, the patient leaving the hospital at the end of the month.

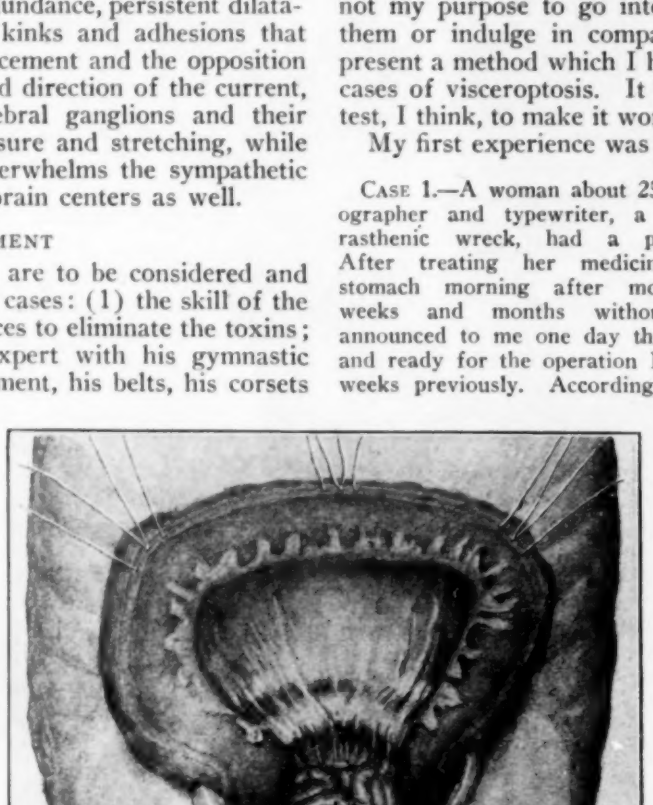

Fig. 2.—The sutures as applied to the colon.

Perfect success attended the procedure. The patient gained flesh and nerve power, returned to her work in three months, and continued it successfully while under my occasional observation for several years.

AUTHOR'S METHOD

From this experience I gradually evolved the method I now employ. This description embraces the complete operation in which both stomach and colon are involved in extreme ptosis and adhesions. Of course, not all the steps described are indicated in every case.

A longitudinal or transverse incision is made below the umbilicus. Through this adhesions are severed, the organs

set free, the appendix removed, the caput, if overdistended, plicated; the uterus, which is frequently found displaced, restored to normal position and supported there, and, if necessary, the appendages dealt with as indicated. The incision is closed.

A longitudinal incision is then made above the umbilicus through which the upper abdominal cavity is thoroughly explored with the hand, note being made of the condition of the liver, its ligaments, the gallbladder and ducts especially. Any pathologic conditions discovered are dealt with according to indications, new incisions being made or the original one enlarged if necessary.

The stomach is then delivered through the wound, and inspected and palpated for ulcers and pyloric irregularities. If dilated, the anterior wall is depressed with a sound along the middle line, and over this the stomach wall is plicated in a double row of linen sutures. In a line just above or below this, and midway between the extremities of the stomach, two or more linen sutures are threaded along in the stomach wall, including the peritoneal and muscular coats, each one being buried for from one-half to three-fourths inch. The stomach is returned to the abdominal cavity. The sutures still untied are left long and protruding from the wound, wrapped in sterile gauze. The transverse colon is now delivered through the wound, the omentum ligated along the border of the intestine and cut away. The hepatic flexure is picked up and two sustaining linen thread sutures are threaded along in its walls similar to those in the stomach, left long and protruding through the wound and protected by sterile gauze. Next the splenic flexure is exposed and treated similarly, and finally the transverse colon at its middle section. These sutures are all passed either just below the attachment of the mesocolon or in the broad band of the colon. The latter is firm and holds well, and is to be preferred when the colon wall is distended and thin. Three incisions, 2½ inches long, are now made through the skin down to the deep fascia, one parallel to the border of the ribs over the seat of the splenic flexure, another corresponding to this over the hepatic flexure at a slightly lower level, and a third, a transverse incision, at the midline over the stomach. The long sutures are threaded singly into a Peaslee needle, passed successively into the abdomen through the abdominal wound and brought out in the bottom of the skin incisions previously described. First the stomach sutures are passed emerging in the midline incision, the stomach restored to normal position, and the sutures drawn taut, tied and cut short. The three pairs of sutures in the colon are successively passed in the same way, each pair in the three designated loci of the colon being directed to the incision in its corresponding location. All the sutures are drawn taut to straighten out the intestine and make intimate contact between the intestine and the parietal peritoneum, and then tied externally to the fascia in the bottom of the incision and cut short. The three incisions are then closed with a subcuticular catgut suture and sealed with sterile collodion.

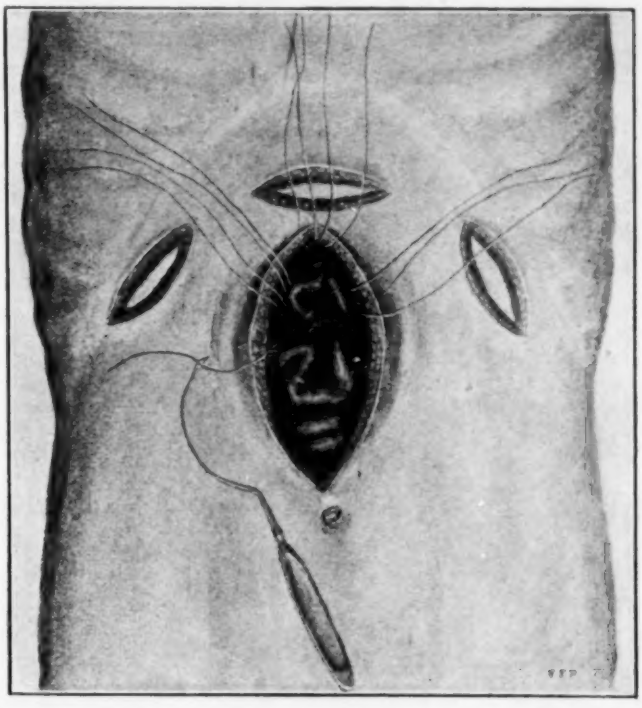

Fig. 3.—The colon has been returned to the abdominal cavity. The Peaslee needle has been threaded with one end of first suture ready for passage through abdominal wall.

It will be observed that the fixation sutures of the stomach and transverse colon are brought out through the same incision. When both organs are to be attached, the fascia in the bottom of the wound is laid bare for half an inch above and below the middle of the wound and the respective sutures passed at the extreme limits of the denuded space, the stomach sutures above and the colon sutures below. The two sutures composing the various pairs are threaded along in the walls of the viscera in the same line and about one-fourth inch apart. I have thought it advisable in some cases to link these sutures together, thus converting them into a figure of eight suture. This distributes and equalizes the tension over a broader area and diminishes the tendency to cut. The abdominal wound is closed in the usual three layer method. Adhesive plaster and bandages are applied moderately tight and the foot of the bed kept elevated from 6 to 18 inches, according to the tolerance of the patient.

REPORT OF CASES

Including the first case already reported, I have subjected, in all, seventeen women to this operation in one or more of its phases and attended with various complications, with fifteen satisfactory recoveries, some of them quite phenomenal, one unsatisfactory, and one death as a direct result of a complication, modification or supplemental procedure. All of them had suffered for years from obstinate constipation, loss of flesh and strength; some of them were broken down neurasthenics; two had ptosed kidneys (one tuberculous), one a ptosed liver, and others displaced uteri and diseased appendages. Diagnosis was made from history and symptoms, palpation and percussion, confirmed in some instances by the roentgen ray. In one or two instances the conditions were discovered on opening the abdominal cavity for diseased uterine appendages and displaced uteri. Four patients were between 20 and 30; nine between 30 and 40; three between 40 and 50, and one, 59.

Nine were housewives; three, stenographers; two, servants; three had no occupation except social duties (two of them were daughters of physicians.)

Suppuration of the sustaining sutures occurred in two cases.

One of these patients was a little, thin, poorly nourished, nervous woman with household cares; she had two little boys, and her husband was a newspaper reporter. The walls of the stomach and the intestine were stretched out and thin. The sutures doubtless pierced the lumen of the intestine or stomach, and infection arose from the contents. I removed about half of them one after another at my office during the three months following the operation. Attachment and support, however, were perfectly maintained. Four years later all organs were found in place, the patient had gained 15 pounds, and she pronounced herself perfectly well and equal to all her duties. She has reported at my office within the past month and confirms all I have said.

The patient that died (Case 12) had a most unusual elongation of the transverse colon, and after all the sustaining

sutures had been placed and those at the two flexions drawn taut, the transverse portion looped away down below the umbilicus. It could not be drawn up into place at the middle point without great reduplication and kinking. That seemed to nullify all my work and if possible aggravate the original condition. I therefore resected about 8 inches of the middle section of the transverse colon, making an end-to-end anastomosis. These stitches unfortunately did not hold. There was leakage and in spite of all I could do the patient died of sepsis.

ABSTRACT OF DISCUSSION

Dr. C. A. L. Reed, Cincinnati: In enumerating the causes of visceroptosis, Dr. Goffe failed to mention that which I have found to be the most frequent cause—trauma of the abdomen. A heavy weight falling suddenly on the relaxed abdominal wall is apt to produce severe ptosis which is persistent. Another frequent cause is occupational in character operating in the case of women who are subjected to long standing or heavy lifting under conditions involving relaxation of the abdominal wall.

In referring to the different forms of treatment, Dr. Goffe said we must exhaust the resources of the internist. It is perfectly proper to do this when it is shown that the problem is one for the internist, but in a case distinctly impossible of recovery from such treatment why trifle with medicinal means? The gymnastic line of treatment is very good, but the passive treatment is to be regarded as one of constructive and preoperative methods. Assuming once or twice a day the Trendelenburg position, to which Dr. Goffe has referred, with deep massage of the abdominal wall, working everything toward the waist line, is of value in keeping off the ultimate results because it does relieve the mesentery circulation of its most serious complication. Reference has been made to the bacterial evidence which exists, and I would call attention to the researches made within the last year demonstrating an anaphylatoxin germinated by blood stasis. The splendid results obtained from this fixation operation are due to the liberation of the fecal current, restoration of the normal function of the bowel. We have liberated the static blood of the mesenteric circulation and have thereby removed the cause of the anaphylatoxin factors coming from that source.

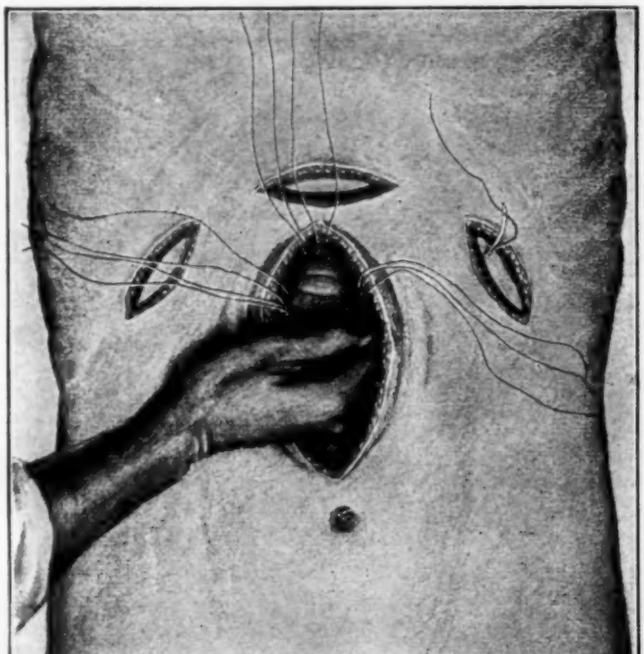

Fig. 4.—Point of Peaslee needle appearing with first suture in abdominal wound. It is unthreaded, the needle is withdrawn, and the same process is repeated with balance of sutures.

Dr. Nathan Rosewater, Cleveland: I have had excellent results in the medical treatment of numbers of these patients, so that they never have required operative interference. I refer to the use of adhesive plaster bandages without operation. The results obtained proved that engorgements into the cranial and thoracic cavities could result from spanchnoptosis and might be restored by attention to the originating cause. Such results in all my cases for the past twenty years make me doubt the necessity for operation, except where all else has failed.

Dr. W. T. Reynolds, Kansas City, Mo.: Dr. Goffe's paper has again brought up the question of what we shall do in these cases of visceroptosis. The modern fluoroscope has made it possible for us to observe these conditions in all their different phases, and one is certainly impressed with the position of the colon (especially the transverse) and the stomach. As one watches the movement of the stomach and the colon he at once questions the advisability of any sort of fixation operation. I believe Rovsing's classification of maternal and virginal visceroptosis is one of the best. In operating on women with large uterine fibroid I have often found the transverse colon lying down near the pubes without giving rise to untoward symptoms. I am convinced that only a small percentage of cases with visceroptosis are ever treated, and those who apply for treatment are of that distinct type, the undernourished. Belts no doubt have their place in the treatment of these cases, but, after all, forced recumbency and feeding with the hope that they will accumulate fat on the inside of the abdominal cavity is most important.

Dr. A. H. Aaron, Buffalo: I have seen a great number of these cases of ptosis and have been impressed with the lack of the tone of the muscles and tissues of the abdominal wall and the contained organs. The abdominal bandage, if properly applied, is curative in the great majority of these cases. You yourself must put the bandage on and see that it relieves the condition as intended, and you must study the cases fluoroscopically at various intervals of time to determine the efficacy of the support. It is desirable to treat the patient constitutionally with rest, abdominal support and forced feeding for a number of weeks, when the tissues will be improved to such an extent that the patient is in better condition for an operation if this is indicated. A greater number of these cases are medical before operation and essentially medical after operation.

Dr. J. Riddle Goffe, New York: I spoke of the gymnastic treatment as prophylactic. I have not found that it does much good as a cure. My experience with the abdominal belt is that in ninety-nine cases out of a hundred the kidney will slip down under it. The patient is then worse off than before. The gentlemen who have spoken of the advantage of the belt apparently have had unusual success with it, but this is not in accord with my experience or with my observation.

Convulsions.—There are two features which, together, cooperate in producing the symptom which we call a "convulsion." One of these we may call the chemical factor; the other the mechanical. The one, the chemical, acts in producing edema of the brain, which so long as there is a sufficient blood supply shows itself in headache, moderate dilatation of the pupils, and other changes which are suggestive of more serious symptoms which are convulsive depending on the amount of blood that reaches the swollen central nervous system. The amount of blood reaching the brain depends on the difference between the intravenous pressure and the intracerebral pressure. As long as the cerebral swelling is not great enough to bring the difference in intravenous and intracerebral pressure too close to zero a convulsion does not occur. Also as long as the intravenous pressure remains enough above the intracerebral pressure to adequately supply the brain with blood, the convulsion will not occur.—*Journal of Laboratory and Clinical Medicine.*

THE USE OF SODIUM BROMID IN ROENTGENOGRAPHY *

E. H. WELD, M.D.

ROCHESTER, MINN.

In the past, various substances have been used as opaque mediums in pyelography. Among such substances may be mentioned bismuth, the colloidal silver solutions (collargol, argyrol, electrargol, cargentos, etc.), and several preparations of silver iodid and thorium. Many of these substances, when retained in the renal pelvis, have a more or less irritating action on the kidneys, as has been demonstrated experimentally by Braasch and Mann, who injected the kidney pelves of sixty-seven dogs, and compared the effects of a variety of solutions. The results of their experiments show that the silver preparations act as foreign bodies, frequently causing multiple foci of necrosis, and that such focal necrosis may also occasionally occur when there is insufficient drainage from a kidney pelvis, even when bland fluids are used. Thorium nitrate in a 15 per cent. solution, as suggested by Burns, caused the least reaction of the various opaque mediums. This medium has been widely used in pyelography, and, until recently was considered the best one available, the greatest objections to it being the chemical difficulties in its preparation and the excessive cost. More recently Cameron has advocated the use of potassium iodid in a 25 per cent. solution, which appears to be fully as opaque to the roentgen ray as thorium; it has the advantage of being easily prepared, and is somewhat less expensive.

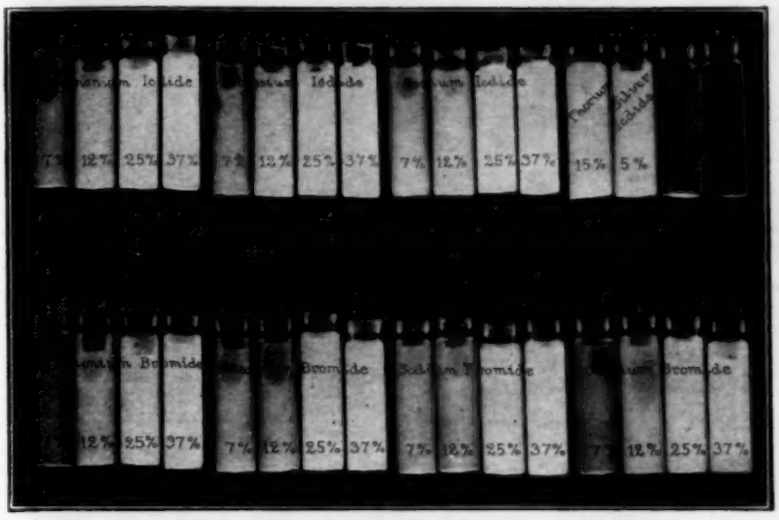

Fig. 1.—Comparison of different solutions; roentgenograms taken in 8 c.c. bottles.

The ideal medium for pyelography should be nontoxic, nonirritating and easily soluble in urine—one that is easily sterilized, that keeps well under all conditions, and is easy to procure at a reasonable cost.

In experimenting with various solutions in order to determine their opacity when rayed, we found that the bromids were quite as satisfactory as any of the other solutions, and in many cases it was only necessary to use a 12.5 per cent. solution to obtain a readable pyelogram or cystogram. It would seem that the opacity of various solutions should vary as directly as their atomic weights. However, there is little or no difference in the opacity of the solutions of the same strength, whether bromids or iodids (Fig. 1). Severe reactions have been observed in several patients, when potassium iodid in 25 per cent. solutions was employed. This was evidently due to local irritation. The bromids have not appeared to be so irritating as the iodids. Bromid salts are freely soluble in urine, so that their irritating action is continually lessened by dilution with urine from the time that they are injected. They are excreted very largely by the kidneys, and no deleterious effect on the substance of the kidneys has been noted. The toxic effect that might be produced may be disregarded, because as much as 8 or 10 gm. of the salts have been given by mouth without producing any untoward symptoms, and it is unlikely that there is much absorption in the genito-urinary tract. Probably no sedative effect would be noted.

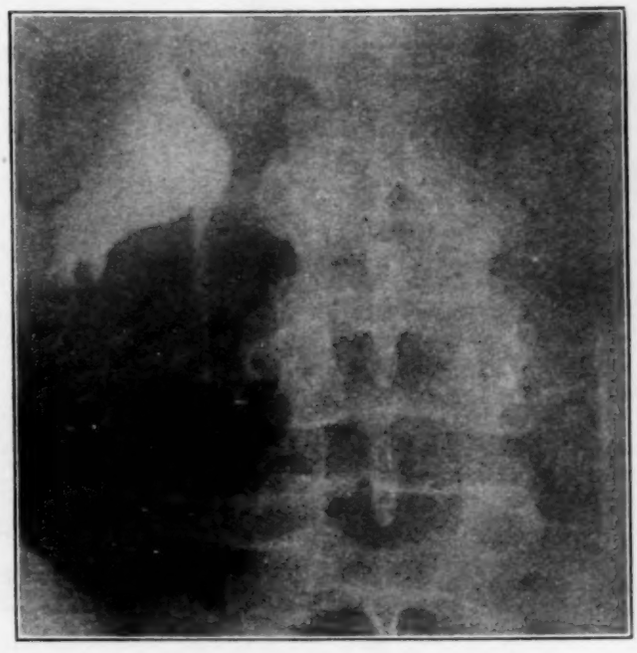

Fig. 2.—Pyelogram with 25 per cent. sodium bromid solution; slightly dilated pelvis; normal calices; lead catheter on left.

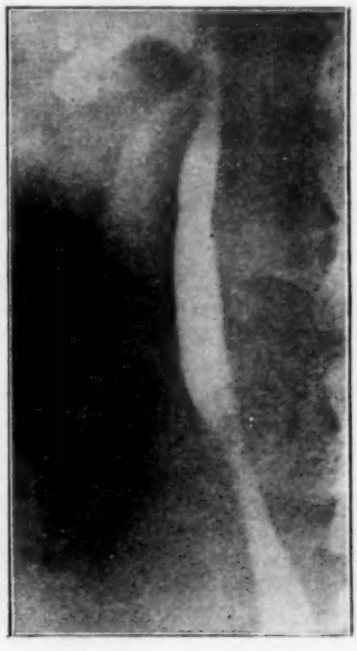

Fig. 3.—Pyelogram with similar solution; marked inflammatory dilatation of calices and ureter.

The opacity appears to be due almost entirely to the bromid radical, as it is shown that when sodium

* From the Section of Urology, Mayo Clinic.

chlorid is used, little or no retardation of the roentgen ray is noted. Sodium bromid, apparently, smears over the surface of the ureters, minor calices of the kid-

Fig. 4.—Cysto-ureteropyelogram with 25 per cent. sodium bromid solution; bilateral ascending pyelonephro-ureteritis, cystitis and distorted bladder.

neys, and small saccules of an inflammatory bladder even much better than thorium, and for this reason we believe has a distinct advantage over it. Furthermore, the drug is easily obtained, and costs only 75 cents a pound at the present time, whereas potassium iodid costs $4.90 a pound, and thorium, even in a 15 per cent. solution, largely because of the difficulty in its manufacture, costs $2.50 a pound.

We have injected 2 c.c. of 25 per cent. sodium bromid in the ureters of three dogs, in which the ureters were ligated and divided immediately after injection. Six days later, a nephrectomy was performed and a hydronephrotic sac containing approximately half an ounce of fluid was found. Macroscopic and microscopic examinations of these kidneys did not show any irritating effects from the drug. We have used a 12 per cent. solution of sodium bromid in making several cystograms on patients, and a 25 per cent. solution of sodium bromid in making several pyelograms, without noting any injurious effects (Figs. 2, 3 and 4).

Experiments are now under way for the purpose of comparing the effect of thorium, potassium iodid and sodium bromid, when they are retained in kidney pelves, and also for the purpose of studying the gradual development of hydronephrosis after the injection into the kidney pelvis of various opaque solutions. The sodium bromid is easily procured, easily sterilized, and is inexpensive. In our experience sodium bromid in a 25 per cent. solution, has offered advantages as a medium for pyelography as follows:

1. It is a bland solution and does not damage the kidney.
2. It casts a clear shadow, outlining the entire pelvis and ureter as well as, if not better than, other mediums thus far advocated.
3. It is less irritating to the pelvic and vesical mucosa than other mediums.
4. It is the least expensive, and is readily procured.
5. It is very easily prepared, and is readily sterilized by boiling.

AN EFFICIENT SUPPORT FOR SACRO-ILIAC RELAXATION *

W. BARNETT OWEN, M.D.
LOUISVILLE, KY.

The importance of sacro-iliac strain or relaxation in the production of partial invalidism has been recognized for several years. The frequency of occurrence and the persistence of pain and discomfort incident to relaxation of the sacro-iliac joint following childbirth, prolonged illness, and also from excessive pelvic strain and distortion, has necessitated the devising of a more efficient type of support than has hitherto been obtainable, that is, one which can be worn continuously and maintained in the proper position. The greatest difficulty that has beeen experienced in the use of previously devised types of support, including

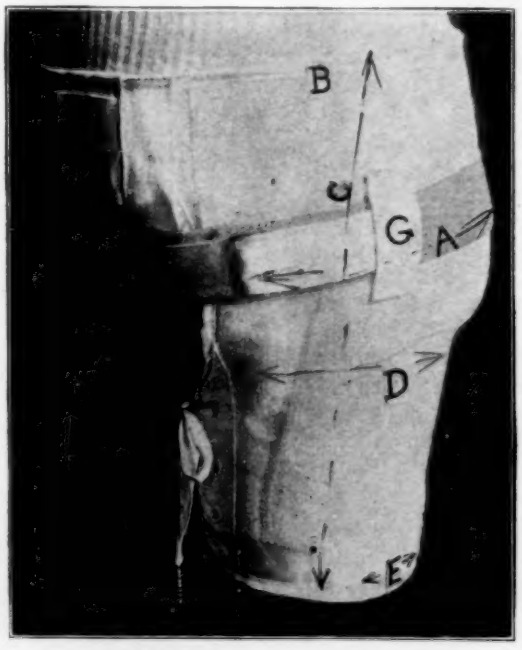

Fig. 1.—Support for sacro-iliac relaxation. Measurements in Figures 1 and 2: *A*, circumference for belt; *B*, circumference of crest; *C*, outside; *D*, circumference of thigh at gluteal fold; *E*, circumference of thigh 5 inches below; *F*, gluteal fold to top; *G*, loops.

the various belts, braces, etc., has been the maintenance of sufficient continuous support over the sacro-iliac joint.

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

While I claim no originality for the type of support herewith exhibited, I have never seen another just like it. However, should other identical devices be in existence, I can recommend them most highly in the treatment of sacro-iliac strain and relaxation.

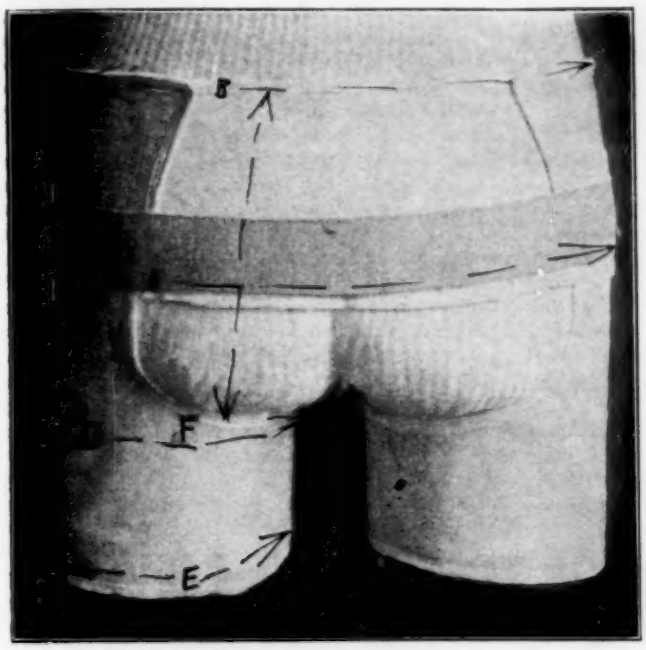

Fig. 2.—Back view of support.

To insure proper results, the device must be maintained in such a position that the lower border is on a line with the greater trochanter and the pubic arch, and at a corresponding level over the sacro-iliac joint. In other words, the support must be maintained as low as possible, and at the same time allow the patient to assume the sitting posture without discomfort. No matter how carefully applied, the ordinary belt will invariably slip upward, and where perineal straps are used to prevent this they cause so much discomfort from pressure on the perineal region that it becomes necessary to loosen them, and the supportive efficiency is thereby lost.

It has been my practice to have the apparatus made of bleached drilling doubled, the fixation skeleton resembling a pair of short pants extending from the crest of the ilium to the middle of the thighs following the gluteal fold, with a loop on each side through which passes a heavy elastic belt 1½ inches wide. The best results will be obtained by having the support fitted directly to the patient before it is completely finished. When this, however, is impossible, the device may be satisfactorily constructed by the measurements indicated in Figures 1 and 2.

I have supervised the application of this particular type of support in more than 200 cases of sacro-iliac relaxation or strain, and the symptoms have been entirely relieved excepting in two instances; but neither of these represented the classical type of sacro-iliac strain.

CASE 1.—A woman, aged 35, attempted suicide by taking morphin, and then by jumping from a second story window astride a picket fence. A number of injuries were inflicted, the most serious of which were separation of the left sacro-iliac joint and separation of the pubic articulation. In this instance it was necessary to apply first a double plaster-of-Paris spica with the limbs completely extended and abducted to about 45 degrees. The sacro-iliac support was afterward applied as a convalescent splint and was thoroughly satisfactory.

CASE 2.—A man, aged 25, a laborer, who claimed his sacro-iliac strain was due to heavy lifting while performing some work he was not supposed to do but which he had been ordered to execute by his employer—a rich corporation. The supportive device described was applied, and while much benefit resulted he said he could still feel a "slipping motion" of the sacro-iliac joint. Several roentgenograms were taken under attempted pelvic strain, but all the plates in all positions proved negative. The patient insisted on having a surgical operation performed, which I repeatedly refused to do. However, he was later operated on by another surgeon, both sacro-iliac joints being fixed by zigzag wires fastened to pins driven in the opposing bone. The patient claimed that this operation quickly relieved him of all symptoms. I may possibly be mistaken in this case, but it is my firm belief that a satisfactory settlement was the "treatment" most desired from the patient's point of view.

Of more than 200 patients treated for sacro-iliac strain, twenty-four came to my office on crutches.

CASE 3.—One man from southern Indiana had been confined to his bed for eight weeks; he was sent to me for examination to determine if anything could be done for his relief. He was barely able to walk on crutches with the assistance of his physician and a brother. Arising from a stooped position or from a chair without help was absolutely impossible. Roentgenoscopy was negative. The pain was localized over the sacro-iliac joint and radiated downward posteriorly. The sacro-iliac support was applied and the man was able to walk immediately without the aid of crutches despite his physical weakness from having been in bed eight weeks. He returned ten days later walking without the aid of a cane or other assistance excepting the sacro-iliac support. He walked so well that I did not recognize him when he came into the office; he sat in a chair and arose several times without assistance before telling me who he was. He said that on the sixth day after application of the device he was able to "plow tobacco." The support was worn continuously day and night.

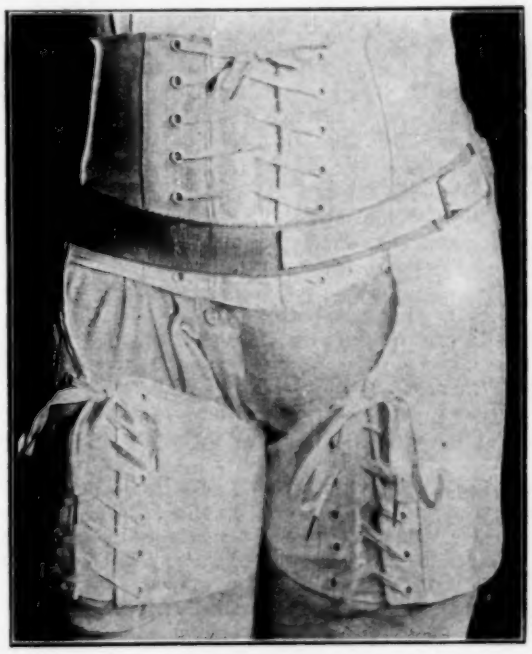

Fig. 3.—Front view of sacro-iliac support with abdominal support.

All the patients coming under my observation for the treatment of sacro-iliac relaxation or strain have

been closely followed, and I am certain that the final outcome has been good in all excepting the two atypical cases mentioned.

ABSTRACT OF DISCUSSION

Dr. Fred. J. Gaenslen, Milwaukee: The author has confined his remarks to sacro-iliac relaxation and to means of supporting this joint. The belt which he has devised answers the purpose admirably, though I would suggest that it be fastened in the back to give greater security. The thigh pieces, while efficient in preventing the belt from slipping up, are not always necessary. As a rule, other and simpler means suffice.

Dr. Charles A. Parker, Chicago: Sacro-iliac strain, subluxation or relaxation, is a sort of "bogy man," and when suggested to a patient is dire in its effect on the nervous system. Perhaps there are instances of these sacro-iliac conditions, but these patients can be given a favorable prognosis. This does not, however, relieve us of responsibility for the care of lower-back troubles, and the necessity for most conscientious care in the consideration of these complaints. We must not overlook the occasional static troubles of the back. The more thoroughly we investigate the less frequently shall we have to fall back on such equivocal terms in lieu of definite pathologic entities.

In the treatment the psychology of back pain is often not sufficiently appreciated; for the alarm that goes with a pain in the back, with the ever present specter of increasing disability and final paralysis, heritage of false teaching and superstition, is enough to upset, and often does upset, an otherwise stable nervous system, when the real trouble would be considered insignificant if it occurred with equal intensity in some other supposedly less vital region. What the effect may be on an already depleted nervous system is painful to contemplate. It is in these latter individuals that the devotees of blue lights and pink bands and red lights and hot air accomplish their most wonderful cures. Patients of more stable character can be shown that with an apparently normal anatomy, with no evidence of tuberculosis, cancer or other serious conditions present, their chances for steady improvement and ultimate recovery are great. Relief by this means, while usually not so startling as that by the more spectacular method, is often very striking and is apt to be increasingly efficient. These cases must be treated by such means as their true pathology suggests.

Dr. J. P. Lord, Omaha: I agree with everything that has been said, except that I am not so much disposed to make light of the infrequency of this condition. There are cases that will continue to give you trouble until you secure other supports for the sacro-iliac joints than by putting bands about the pelvis. In the severer cases, and those failing to be relieved by ordinary supporting bands, it has been my practice to add to the pelvic metal band a support for the lower part of the chest, so as to get rid of the adverse strain produced by movements of the spine, which is so prone to disturb the sacro-iliac joint. Since I have been adding a "second story" to Osgood's apparatus I have secured a greater amount of relief.

Dr. John L. Porter, Chicago: When it comes to sacro-iliac relaxation I am the worst skeptic that ever was. In twenty years I have seen just two sacro-iliac joints that some one could demonstrate to me were relaxed sufficiently to show movement. Both were in pregnant women. I have never had any one demonstrate to me a sacro-iliac joint with motion in it in a normal individual who had not had some pathologic or physiologic process (such as pregnancy) to produce relaxation of these joints.

Dr. Ethan H. Smith, San Francisco: Within the last two years I have treated nearly three hundred cases that appeared to have relaxation of the sacro-iliac joint. I think that this term is an undeserved slander on that articulation. These cases will be found to have a tilt of the pelvis in one direction or the other, a tilt of the lumbar spine, with relaxation of the lumbar muscles on one side and a contraction of those on the opposing side. In such cases as need bolstering up I have used a modification of the corset devised by Dr. Robert W. Lovett, with a great deal of satisfaction. In the last two months I have assisted in the examination of several thousand men for the Army. In certain contingents I found that 10 per cent., and in other contingents 30 per cent., presented a pelvic tilt, with contraction of the muscles on one side and relaxation of those on the opposing side. I also found that two-thirds of those that presented this condition did not know that they had it, and had no pain. I found many of these cases among employees of the Union Iron Works, many of whom have been drafted; and in private practice I found them among saleswomen, especially those handling heavy garments in the suit and coat departments of large stores. It was also common among persons who habitually stand on one foot, and in those who habitually carry little babies on one arm. I have come to the conclusion that in those cases in which we find no pain we do not diagnose a sacro-iliac joint disturbance, while in those who have pain (and there are three times as many that are painless as those that come with pain) the condition is recognized. Dr. Owen's apparatus looks as if it were very efficient. I think that it will have a good effect on these cases, but I still disbelieve in sacro-iliac relaxation.

Dr. W. Barnett Owen, Louisville, Ky.: I expected exactly what I got; but I still maintain that when you have a patient come to you with extreme pain over the sacro-iliac joint, radiating down the thigh, and that patient has had every form of treatment from electricity to antirheumatics, with no relief, one should give him a support. Dr. Porter mentioned two cases that he had seen in which there was slipping. I only mentioned that one patient said he could feel slipping. Always roentgenographic and otherwise careful examination was made, and in every case all symptoms, except pain in the sacro-iliac region aggravated by attempted strain, were absent. It is immaterial whether you call the condition sacro-iliac relaxation or neurosis. The patient comes for relief. If a proper support will relieve him, give it to him, and select a name later. Nourishment is not kept from babies until they are named.

DERMATITIS LYCOPERSICUM ESCULENTUM (TOMATO PLANT) *

EVERETT S. LAIN, M.D.
OKLAHOMA CITY

When certain plants are brought into proximity or actual contact with the skin of certain individuals, more or less reaction follows. The skins of some persons, however, are not appreciably inflamed even from contact with the most commonly known poisonous plants.

No writer on this subject, so far as I know, has yet attempted to enumerate or classify all such poisonous plants. Some authors do not mention more than a few of the well known plants, such as the poison ivy, the sumac, the wild rose, and the nettle, with their several offending members.

Various other names are continually being added to the list of so-called poisonous plants, namely, plants that are capable of producing a dermatitis venenata on the susceptible skin of certain persons.

ETIOLOGIC FACTORS

A plant that is capable of producing a dermatitis in certain sensitized individuals appears to be less infectious at certain seasons of the year or, in other words, at certain stages of its growth. This is due to the fact that only certain parts of the plant, such as its pollen, hairs, thistles or its expressed juices are poisonous. Botanists have asserted that climatic con-

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

ditions may favor or retard the development of this poisonous element.

Persons who are susceptible to this form of dermatitis are spoken of as possessing an idiosyncrasy or a special sensitization for this particular plant. The fact that the same individual is not always affected when coming into contact with the same plant has been theorized on by the French school[1] as bearing a relation to the normal or perverted condition of the visceral organs. Walsh[2] states that it may be due to a temporary lack of a full supply of blood to that locality on which the dermatitis develops. American histopathologists seem more inclined to call it an anaphylactic reaction of a sensitized condition which that persons bears toward that particular chemical or protein poison.

AUTHOR'S OBSERVATIONS

Having practiced in the South, where a large variety of vegetation grows luxuriantly, I have had an opportunity to observe different herbs, plants or vines that are capable of producing this form of dermatitis. During the past several years I have frequently noticed on the hands and sometimes the faces of hucksters and gardeners a form of dermatitis for which it has been difficult to account, other than on the basis that it had been caused by some common garden vegetable.

In the summer of 1916, after having carefully noted the history and development of several of these cases, my attention was directed especially to the ordinary tomato plant, which is found in nearly every garden in its season. Since that time, I have noted several cases which seem to bear a positive relation to the gathering of tomatoes from rank and dewy-laden vines.

Dermatitis venenata in Case 1. Second attack in the same patient, each time the lesions appearing within a few hours after gathering tomatoes from rank, dewy-laden plants.

At first it seemed preposterous that the plant on which the tomato grew should be capable of doing harm even to the most sensitive of human skins. I made a brief search of textbooks and the literature on skin eruptions which might be caused by plants. I found many plants mentioned by various authors, yet I did not find a single reference to the tomato plant.

I then wrote to the reference department of the American Medical Association and received a reply that it had only one article indexed—a French abstract—that mentioned the tomato plant. I looked up the botany and classification of the tomato plant. It then occurred to me that this plant was a very probable etiologic factor in several of my cases of dermatitis venenata, which had been previously recorded as "cause unknown."

HISTORY AND CLASSIFICATION

After reviewing the history and classification of this vegetable, I find that the name "tomato" is derived from a Spanish word *tamate*, which was given this plant by the Spanish people of South America, of which countries it is a native. It is botanically known by its Latin name—*Lycopersicum esculentum*. This name, meaning "wolf peach," gives us a brief insight as to the opinion of the South Americans toward this plant, which opinion prevailed until after it was introduced into both Europe and North America. For several centuries it was considered, even by the Europeans, as a poison and was grown only as a garden ornament, which they called "love apples." Not until about the middle of the nineteenth century did this plant become generally cultivated as one of our most harmless and luscious vegetables.

The tomato plant belongs to the *Solanaceae* group and the family of nightshades. One well known member is recalled as the deadly nightshade or belladonna, meaning, "beautiful lady," relating to the practice at one time of certain Italian ladies of making their eyes beautiful by the application of certain parts of this plant. Belonging to the same family, we find the jimpson weed, the horse nettle, red pepper, and the egg plant. Some of these plants, we recall, are a most common cause for an urticaria, either from local contact or internal ingestion.

Bailey[3] states that nearly all of the *Solanaceae* group contain poisonous narcotic alkaloids or glucosids which may be converted into a certain amount of hydrocyanic acid. According to Pammel,[4] the tomato plant contains saponin among other active elements. Physiologic chemists state that saponin is a poisonous glucosid, soluble in water, and becomes a violent irritant when applied in soluble form to the mucous membranes or delicate epithelial tissues. Whether this will account for the dermatitis which this plant appears capable of producing, I am unable to say.

APPEARANCE OF THE ERUPTION

This type of dermatitis venenata that I have observed, is not materially different from that produced by many other poisonous plants, such as the so-called blood weed, or a mild degree of the *Rhus toxicodendron*. The few cases which I have noted during the past two summers have occurred on the dorsum of the hands, wrists and both surfaces of the forearms. The eruption most frequently begins as a mild stinging or itching sensation, followed in a few hours by an erythema on the surface of the skin which has been exposed. The area has no sharp lines of demarcation, such as is sometimes present in *Rhus* poisoning. On this erythema there develop miliary, discrete papules which soon become vesicular. Few

1. White, R. P.: Occupational Affections of the Skin, 1915, New York, Paul B. Hoeber Company, p. 12.
2. White, R. P.: Occupational Affections of the Skin, p. 13.
3. Bailey, L. H.: Encyclopedia of Horticulture, **4**, 1931.
4. Pammel, L. H.: Manual of Poisonous Plants, **1**, 62-63.

of these vesicles reach the size which is observed in many other forms of dermatitis venenata. It is most frequently limited to the surfaces which have been in friction contact with the so-called hairs, and probably the bruised leaves or limbs of the plant.

All of these patients gave a history of having exposed their hands and forearms among rank vines in the morning hours while the plants were yet laden with dew. This moist condition seems also to be a predisposing factor in other infectious plants. A dermatitis due to this plant is not an everyday incident, even in the practice of those in the more rural districts. Nor is it probable that the same plant is equally as infectious in every particular locality or season in which it is grown. Therefore, within two seasons I have noted less than a dozen cases bearing a positive etiology.

I will briefly report only two cases which are fairly representative of each of the others.

REPORT OF CASES

Case 1.—Mrs. C., aged 45, who had a thin, clear and tender skin, and was in good health, consulted me for an eruption on the backs of both hands and covering both forearms almost to the elbows. She had not been outside of the house except in the garden to pick tomatoes the previous morning. A prickling, itching eruption had begun within a few hours after gathering her tomatoes. At the time of my examination the eruption had the usual clinical symptoms of a mild dermatitis venenata. I made inquiry in regard to all other possible sources of infection or the application of drugs with negative results. I went out and inspected her garden. This garden presented an unusual absence of weeds of all kinds. On inspecting the tomato plants I found them large, rank, thrifty plants, with no evidence of infecting insects, such as the blister bug. I noted, however, that the limbs were bruised in places, also heavily covered with the so-called downy plant hairs.

Case 2.—Mrs. G., aged 30, who had a blond, fair, tender and well-kept skin, consulted me for an eruption on the dorsum of the hands and arms to the elbows. The eruption presented the usual and clear differential marks of a mild dermatitis venenata. I made inquiry in regard to her whereabouts the previous few days, also particularly concerning the application of any hand or skin lotions, but with negative results. On inquiry in regard to contact with plants, she said she had gathered her tomatoes on the previous morning. The eruption, or the beginning sensations, had begun late the same day. This lady also recalled having had a similar eruption the previous summer, when she had gathered her tomatoes without wearing gloves. I did not go out to inspect this garden, but learned that her garden was free of other possible infecting plants. Also, her tomato plants were considered the finest in the neighborhood.

CONCLUSIONS

I realize that I shall appear as rather premature in presenting any definite conclusions on so few cases observed. Also, it may be reasoned that, if the tomato plant is poisonous to certain individuals, it seems strikingly strange that some dermatologist has not heretofore observed and reported it.

To the first accusation, I plead guilty. To the second, I have only to say that, after seeing these few cases which have a positive etiologic history; after noting the close botanical and chemical relationship between this and other known poisonous and infectious plants; also, after having studied its branches under magnified power, I am fully convinced that the tomato plant is and has been an etiologic factor in some of my cases of dermatitis venenata.

It may be that such cases are extremely rare or that they are confined to certain soils or seasons.

Finally, it is neither my ambition nor my opinion that another new name should be added to an already well known disease—dermatitis venenata. I only trust that this report may cause other dermatologists to observe and that eventually we may learn the full possibilities for harm which may lurk in this common vegetable.

ABSTRACT OF DISCUSSION

Dr. Arthur W. Stillians, Chicago: We must thank Dr. Lain for adding another to the many known causes of dermatitis venenata. The etiology of these cases is so often difficult to determine that there must still be unknown factors, and the discoverer of one of them is a benefactor to dermatology.

Dr. Frank Waugh, Chicago: A patient I have had under observation had this trouble every fall while working in a florist's shop when chrysanthemums were in full bloom. I do not remember having heard of a dermatitis venenata due to the bloom of the chrysanthemum, which in this case proved to be the etiologic factor.

Dr. Ernest L. McEwen, Chicago: Inasmuch as this is one of the first cases reported of dermatitis due to the tomato, I think we should congratulate Dr. Lain that he does not contemplate coining a new name.

Dr. Frederick G. Harris, Chicago: I would like to ask Dr. Lain if he has eliminated the possibility of the trouble being due to some insecticide. This might well occur in picking vegetables that had been sprayed with arsenic or other solution.

Dr. David Liebertiial, Chicago: I should like to know if Dr. Lain noticed a recurrence of the dermatitis after a repetition of picking tomatoes. In that case the cause would be established.

Dr. Richard L. Sutton, Kansas City, Mo.: Dr. Lain's paper is of great interest, for it gives us a new plant dermatitis. I wish to record another new variety of industrial dermatitis, one which might be designated as "cactus dermatitis." It was first described to me by Dr. George P. Lingenfelter of Denver, and is a comparatively common disorder in the arid regions of the west. The disease develops as a result of the lesions caused by the small, splintered spicules that break off the stalks of cactus plants, and the majority of the victims are gasoline tractor drivers. The wounds, which usually are confined to the patient's arms and legs, frequently become infected and severe ulceration oftentimes ensues.

Dr. Robert G. Washburn, Milwaukee: About a year ago I had the opportunity of observing a case of dermatitis of the hands in a woman, resulting from the handling of the tomato during the process of preserving. This would seem to indicate the presence of the poison in the juices as well as in the stems of the plant and would eliminate any question of poison from insects or insecticides.

Dr. Harold N. Cole, Cleveland: I was wondering if the dermatitis resulted from the sharp spicules of the tomato vine, which are often so plentiful on these plants.

Dr. James Herbert Mitchell, Chicago: I would like to ask if transplanting the young tomato plants in the garden is likely to produce this result. Recently I have seen a number of cases of dermatitis venenata which occurred in men who were doing amateur gardening, and close questioning failed to elicit any contributory cause.

Dr. William Allen Pusey, Chicago: Dr. Lain's paper was extremely timely and I congratulate him for having given us so much information on this subject. I sympathize with him in the manifest inability to answer some of the unanswerable questions that have been put to him. Nevertheless, I have no doubt he is correct in attributing his cases to the tomato. He seems to have made out an undoubted case and to have done all that possibly could be done to establish it. The determination of the local causes of many of the cases of dermatitis that we see is a difficult matter. It requires ingenuity and much of the sort of patience that he has exhibited.

Dr. Everett S. Lain, Oklahoma City: Dr. Pusey has come to my aid and suggested the impossibility of replying to all of your questions. As regards the chrysanthemum mentioned

by Dr. Waugh, if he will look up the literature on poisonous plants he will find that the chyrsanthemum belongs to the poisonous group, as do also the geranium and the nightshade. As regards eruption from insects, I examined the plants closely for the blister bug, the insect which produces eruptions most frequently in the South, but found none. Most insects which may cause a dermatitis are very well known. I found none of these on any of the plants examined. As regards a second infection, I have been observing this plant for two seasons only. In this time I have seen but one second infection. This was the lady whose photograph I have shown. As regards the infecting parts, I have suggested the hairs of the plant or possibly the glucosid, which is soluble in water; also that some friction seems necessary for the infection to take place. As regards the transplanting of tomato plants in the garden, I have never seen a case caused by such handling. I have experimented on several persons who were not, however, susceptible to the common poisonous plants, without a successful inoculation. Therefore, I am quite sure that most people are immune, or are not susceptible to infection from this plant.

THE USE AND ABUSE OF PITUITARY EXTRACT *

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No addition to the obstetric armamentarium during recent years has created so much attention and interest as the introduction of the solution of the active principles of the posterior lobe of the pituitary body, or hypophysis cerebri. Dale described its action on the uterine muscle in 1906, and later experiments by Frankl-Hochwart and Fröhlich showed that pituitary extract caused marked contraction of the uterus in pregnant animals. It was not until Blair Bell in 1909 employed these experimental results in practice that the therapeutic employment of the drug was begun. He used it in cases of postpartum hemorrhage and to reduce the bleeding in placenta praevia and cesarean section. The physiologic basis for the employment of the drug rests on the knowledge of its stimulating effect on all unstriped muscle tissues, including those of the blood vessels, intestine and bladder as well as the uterus, although it seems to have a more selective action on the latter. At first regarded with doubt, the use of the drug increased by leaps and bounds aided by the supposedly favorable results reported by many clinical observers and by the clever and often unrestricted advertising methods of its manufacturers. Most of the marketed extracts are prepared from the posterior lobe and a few from the whole gland of slaughtered cattle. Different manufacturers employed each their own device in labeling the preparation, and although at first there was believed to be little difference in the activity of these, clinical trials showed that some were more reliable than others. The term "pituitrin" came to be the most widely employed and was soon extended to include all the others notwithstanding the efforts of the competing manufacturers to limit such distinctions. Recently one of the latter firms concluded that it would be advisable to limit the application of its preparation in certain classes of cases and has developed two strengths of pituitary extract, one for general surgical use and the other intended for obstetric cases. This seems to me a confession of the necessity for adopting a more definite standard.

The literature on the use of the extract of the hypophysis is now so extensive and the drug has been so widely employed that it would appear profitable to come to some definite estimate of its value, especially as the many favorable reports about its use are counterbalanced by those of a more unfavorable character that are continually creeping into the literature on the subject. On the one hand we find enthusiasts who apparently see no limitations in the scope of its employment; on the other hand are those who find that great caution should be exercised in its use. It seems most desirable that a definite middle ground be established along which such indications can be formulated as will impress any one who is inclined to employ the drug in a given case with the necessity for a thorough knowledge and appreciation of its effects.

The hypophysis extract has now been the subject of clinical observation for a sufficient length of time to warrant such determination as to its value. Many of its enthusiastic advocates report series of cases, including in the field of application the relief of almost any condition depending on the contractile stimulation of unstriped muscle fibers. The fulsome praise of these observers has been even more pronounced and, shall we say, daring, than the fervid claims that the manufacturers of the product allowed themselves in the advertising pages of the medical journals. In this category may be placed the exaggerated and dangerous claim that "the use of the drug is remarkably free from danger even when given in enormous doses." This estimate of the value of pituitary extract was published in 1914, but fortunately the sentiment with reference to such assumed harmlessness has undergone a change, and more recent observers have modified and restricted the field of application and the indications for the use of hypophysial extracts. It was soon realized, among other things, that no satisfactory standard existed for measuring the dosage of the drug, and it seems most essential that the strength of the solution used be more or less definitely known. A "physiologically standardized preparation," labeled as such by manufacturers, is a distinction of little account because the potency of the drug in a physiologic sense probably varies with the species of animal from which the raw materials are obtained, and perhaps even with the season during which the animal was slaughtered. In this connection we may recall the fact that the thyroid gland of animals is known to be subject to such variations, and this probably applies to other endocrine structures. The blood pressure method and observations on the isolated guinea-pig uterus have been largely employed, and the official standard for the United States Pharmacopeia is by comparison with the effects of histamin, a substance isolated from ergot and due to the bacterial decomposition of histidin.

Notwithstanding that considerable work has been done with these methods, impartial investigators find much to criticize in their application and do not regard them as entirely reliable for accurate standardization. It has been shown, for example, that other organic substances stimulate the isolated uterine muscle so that the fact that pituitary extract exerts an effect on the excised uterine muscle and also on the gravid uterus may perhaps be merely a coincidence. It is known, moreover, that various oxytocic substances

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react on all smooth muscle tissue, including the arteries and small veins, as well as the uterus. The action of pituitary extracts on smooth muscle thus brings about increased blood pressure and therefore points to a more satisfactory reaction than can be secured by the other methods referred to.

INDICATIONS FOR USE OF PITUITARY EXTRACT

The indications for the use of pituitary extracts in obstetric practice may be said to be fairly well established, and, employed in a conservative manner, its use should be limited to conditions of simple uterine inertia in which no obstruction to the passage of the child exists either in the cervix or in the bony pelvis. Moreover, the patient must not be in a condition of exhaustion. Its narrower field in the induction of labor with or without other means is now largely given up, and its employment to stimulate labor pains in such malpositions as occiput posterior and face presentations is likewise regarded in a doubtful light. If we accept the indications just stated, the many other recommendations fall aside and it is in this larger class of labor cases that most of the trouble results from the indiscriminate use of the drug. The bad effects vary from laceration of the cervix and perineum to complete rupture of the uterus. In addition, the possibility of postpartum hemorrhage must be guarded against, and likewise a possible asphyxiating effect on the child must be recognized.

A sufficient number of cases that demonstrate the unfavorable effects from the use of pituitary extract have now been reported in the literature, and any additions to the list are merely in the nature of confirmations. My personal experience with the drug in hospital and private practice dates back a number of years. Although somewhat apprehensive of its value, I was led to employ it, and the result of my observations failed to convince me that its use is not attended with considerable danger. This opinion is also based on the result of experiences with the drug in the hands of others in cases seen in consultation, or that were referred to the Lying-In Hospital. It seems to me a duty to disseminate knowledge tending to caution a practitioner in attendance in any given case who is about to resort, merely for the purpose of shortening a labor, to a method that recommends itself because of its apparent simplicity and yet is fraught with great danger unless employed under the strictest indications.

One or two typical examples of a considerable number of cases that have come under my personal observations will serve to explain my position with reference to the use of pituitary extract. The first is a case of fetal asphyxia:

> Mrs. P. L., admitted to the Misercordia Hospital in May, 1916, had a moderate toxemia of pregnancy for which labor was induced at term. Slow dilatation was made with bags; labor pains were ineffective; there was nonengagement of the head without pelvic contraction. Extraperitoneal cesarean section was decided on as the only satisfactory method of delivery. The house physician was directed to give 1 c.c. of pituitary extract after the abdominal incision had been made, as I had been doing in recent cases, but it was found that it had been given in error before the incision was begun. When the uterus was exposed it was found to have contracted so firmly around the head of the child that considerable force was needed to extract the head with the forceps, resulting in a tearing of the sutures and entry of the uterine contents into the general peritoneal cavity. The child was deeply asyphyxiated and failed to respond to any efforts at resuscitation.

In this instance it is fair to assume that the extreme contraction of a tonic uterus following the too early application of pituitary extract resulted in complete obstruction of the fetal circulation, as the fetal heart was quite normal before the operation was begun.

I have used pituitary extract in a number of other cases of cesarean section as an oxytocic and have been disappointed with the result. Either the uterus failed to contract promptly after the delivery of the child, or severe postpartum hemorrhage with relaxation occurred before the patient left the operating table. At the Lying-In Hospital we have ordinarily injected 40 minims of an ergot preparation in cesarean cases before operation, and I am satisfied that this is a more effective agent for the purpose, being more certain in its effects and less likely to be followed by subsequent relaxation. I have also employed the pituitary extracts in several primiparas in whom labor pains were weak; and although strengthened for a time after the use of 5 or 10 minim doses, there was not sufficient progress to warrant placing much reliance on the drug in cases of this character. One instance of fetal death which could be attributed directly to a prolonged labor and excessive use of pituitary extract occurred in a patient admitted to the Lying-In Hospital:

> The patient, a primipara, was given three successive doses of 1 c.c. each by her attendant because of apparent inertia, and on admission to the hospital was in a very much exhausted condition with the head moderately well engaged and the fetal heart not audible. The uterus was in a state of tonic contraction, and examination revealed the presence of a well-marked Bandl's ring, the cervix being almost fully dilated with the membranes ruptured. Under the circumstances a craniotomy was indicated and completed with a moderate laceration of the edematous vulvar outlet.

In this instance pituitary extract was contraindicated by the lack of sufficient engagement of the head and an already exhausted patient. The physician who attended the woman was present during the operation and, I feel, had firmly impressed on him the dangers attending the indiscriminate use of this drug.

Such instances might be multiplied by any one in active hospital service and serve to make one very doubtful of the advisability of recommending this drug to the hurried general practitioner. The shortening of labor may save time for the attendant, but it is certainly at the expense of the patient. The dilatation of the soft parts preliminary to the delivery of the child must be slow and gradually produced, and where this process is halted at any time during the labor, it should not be accelerated by the administration of a drug that often produces tumultuous contractions with rapid expulsion of the fetus and consequent extreme laceration of the soft parts. No one would think of applying the forceps to a head unengaged or with a moderately dilated cervix, and yet in reality the danger is no greater.

We can safely dismiss the contention that pituitary extract renders the forceps unnecessary. When the head is engaged and there are no other contraindications to its use, pituitary extract may stimulate the uterus sufficiently to drive the head down to a lower level; but in nine cases out of ten, the process stops at this point, and forceps are needed anyway. Moreover, a rapid extraction may be called for in advance of this time because of the effect of the more rapidly succeeding contractions on the fetal heart. The only

cases in which forceps might be avoided would be those in which the fetal head is not well engaged and in which the soft parts or the pelvic brim do not interpose any obstacle to the descent; but even here we find that other means of instituting better pains are equally effective and less dangerous. As for its effectiveness in postpartum hemorrhage, I am yet to be convinced that its value is of anything more than a temporary character, giving merely an opportunity for a more reliable oxytocic like ergot to become effective. I have, however, employed it with good results in cases of incomplete abortion when curettage of the retained secundines is undertaken. In these cases the uterus contracts satisfactorily, and undue bleeding is prevented.

The foregoing remarks might lead one to regard me as a pessimist in my attitude toward pituitary extract; but I am less pessimisitic about the drug than the possibility of ever getting the profession to use it properly. I firmly believe that in a restricted class of cases, as already noted, pituitary extract is of value; but every means should be taken to combat the unfortunately indiscriminate employment of the drug. We all know the bad effects, and yet pituitary extract is being used in increasing measure. Granting that it is a valuable therapeutic addition, no one is justified in saying that it is harmless; for in every case in which it is employed, the indications must be carefully formulated before its injection. Moreover, the usually accepted dose of 1 c.c. is too large, and a trial dose of ⅓ c.c., or 5 minims, followed at intervals of an hour with one or two further doses is a preferable method of administration. If the natural forces of labor are unable to expel the child without assistance, it seems to me that their stimulation by the use of pituitary extract is not quite logical; for the resistance if present can better be overcome by forces from below than by forces from above. I make this statement advisedly because I fully admit that in the latter case, by which we mean application of the forceps, equally developed skill and judgment must prevail. The proper preliminary preparation of the patient for her labor, the avoidance of exhaustion by the administration of opiates, postural treatment and other well tried and safe procedures, together with a maximal degree of patience on the part of both mother and attendant, will do more to reduce the number of forceps deliveries or at least the difficult ones, than the means for stimulating uterine contractions depending on the indiscriminate use of hypophysial extracts. When the fetal head refuses to pass beyond the perineal floor, and caput succedaneum with a rigid, edematous outlet supervenes, why not complete the labor by a low forceps operation, which is certain in its results and completely under the control of the operator?

EMPLOYMENT IN OTHER THAN OBSTETRIC CONDITIONS

As for the use of pituitary extract in other than obstetric conditions, little need be said. It has been widely recommended for the relief of tympanites, but in several postoperative cases I found little effect from its use. Neither is it of any particular value as a substitute for the catheter. I am convinced that more cases of postoperative cystitis result from the retention of residual urine than from the proper employment of the catheter. I have had some very good results from the use of pituitary extract in cases of hemorrhage from the nonpregnant uterus, such as menorrhagia in young girls and in older women presenting small fibroids or adnexal lesions resulting in hyperemia. Here the regular administration during the flow has given excellent temporary results until other measures could be applied.

CONCLUSION

I may summarize my estimate of pituitary extract by describing it as a valuable addition to our therapeutic resources, but one which must be used with great caution, particularly in obstetric cases. Here it is safe only in cases of simple uterine inertia, particularly in multiparas, when there is no obstruction to the passage of the child, no exhaustion, and the presenting part engaged. It should be used in doses of not over 5 minims at a time, repeated only when the effect of the previous dose has worn off. For the induction of labor, or as an accepted substitute for the forceps, it would be best not to consider pituitary extract. Properly used under proper indications, the extract of the hypophysis has a distinct place and value. Indiscriminate and improper use will only tend to relegate a good therapeutic medium to the discard.

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ABSTRACT OF DISCUSSION

DR. J. B. DELEE, Chicago: I was one of the first to oppose the use of pituitary extract in labor. Further experience of my own and watching the work of others has confirmed the opinion I expressed many years ago, and has also increased my desire to emphasize the importance of the general practitioner's avoiding the use of pituitary extract in his labor cases. Pituitary extract is like a scalpel; good results are obtained with the scalpel, bad ones, too; but pituitary extract is worse than the scalpel; it is like one of those double-edged bistouries—it cuts both ways, and sometimes in the direction least desired. L. G. McNeile collected sixteen cases of rupture of the uterus from pituitary extract. I know of four others. All happened in the city of Chicago and have not been published. Laceration of the cervix is a complication the importance of which is being recognized more and more. It is nearly always caused if pituitary extract is used before the cervix is dilated. Lacerations of the perineum have always been given a great deal of dignity. They, too, are increased by the use of pituitary extract. Pituitary extract is used so indiscriminately by the medical profession that something ought to be done other than the modest complaints and warnings issued in journals. The subject of the endocrinal relations is still theoretical, but I think clinical experience will give many instances that will prove disturbances of the action of the glands of internal secretion of the fetus. Many children are born dead with the symptoms of asphyxia after the administration of pituitary extract, and the death can hardly be explained by an asphyxia caused by the contraction of the uterus produced by pituitary extract. I used to give pituitary extract before cesarean section, but now give it after the child has left the uterus. I also lived through an experience of spasmodic contraction of the uterus during cesarean section, rendering delivery of the child very difficult. In cesarean section, I give pituitary extract as soon as the child has been extracted from the uterus. I inject one ampule of pituitary extract into the deltoid muscle. I think it makes little difference whose extract is used. If the uterus does not contract promptly, it is also injected with one ampule in two or three spots. I do not give pituitary extract in cesarean section cases after the sutures have been put in. In my opinion, some of the cases of peritonitis following cesarean section and some cases of hemorrhage following cesarean section are due to the use of pituitary extract after the uterus has been sutured. We do not use pituitary extract to produce intestinal action after cesarean sections. I have used a great deal of pituitary extract to stimulate the bladder to spon-

taneous urination with no results. Pituitary extract seems to have a hemostatic effect besides its effect on the uterus. I have used it occasionally in the hemorrhages of the new-born without success. There are cases of primary inertia of the uterus. In these cases, with or without rupture of the bag of waters, pituitary extract will do good; but remember that it is a two-edged knife. When I use it I study the indications with special care; the pelvis for contraction, the cervix for unusual rigidity, the child for abnormal position. A careful investigation of all the attending circumstances is required to enable one to make a proper diagnosis and to place the indication for pituitary extract. The greatest care must be exercised, and I give the extract myself. I have a can of ether at hand for immediate use when indicated. The reason for such extraordinary care was my experience in a case of occipitoposterior position and inertia of the uterus lasting nearly three days, with rise of temperature, showing that the patient was beginning to suffer from infection, in which case it was very desirable to empty the uterus without vaginal examination and without the use of instruments or bags. Three drops of pituitary extract were administered, and produced such a tetanic contraction of the uterus that the woman almost went wild with pain until I could anesthetize her. This woman had an idiosyncrasy to the pituitary extract. Pituitary extract is occasionally useful when, having changed a face to an occipital presentation, strong pains are needed to force the occiput down on the perineum. In puerperal infection, where there are clots or pieces of placenta in utero, pituitary extract may also be useful. In the last sixteen cases which I have delivered, which required the use of forceps and in which I anticipated postpartum hemorrhage, I have given an ampule of pituitary extract immediately after the baby was born and ergot as soon as the placenta was out. Previously, my practice had been to clean out the placenta by hand and pack the uterus. That is a little bit risky for the general practitioner. I have thus found it possible to avoid the use of gauze. Of the sixteen cases I had to pack only one.

Dr. J. L. Bubis, Cleveland: During the last six years I have never given more than from 1 to 3 minims of pituitary extract during childbirth. With this dose given intramuscularly into the biceps in any stage of labor, my results have been most satisfactory. The 1 to 3 minim dose stimulates the uterine pains when very often a larger dose would be very dangerous to both mother and child. In postpartum hemorrhage there is no drug that will act so quickly. The danger of relaxation after severe contraction may be overcome by ergot. As a galactagogue pituitary extract has not been satisfactory.

In cases of retention of urine, it has been used with varying success. I have had better results from the introduction of one-half ounce of glycerin into the bladder. This has done away with probably 95 per cent. of catheterization in obstetric and surgical cases. In the removal of retained secundines I have used 1 c.c. of pituitary extract intramuscularly. By the time the uterus is cleaned out with the placental forceps, finger or curet, the pituitary extract has so contracted it that there is practically no bleeding and the uterus remains firm. Hot irrigations and packings are not necessary. At the end of the second stage of labor, pituitary extract is also effectual. We generally use gas anesthesia. Very often, just as the head reaches the perineum, the patient is placed under gas anesthesia and the labor pains cease. With the injection of 1 or 2 minims of pituitary extract the labor pains immediately recur.

Dr. Jennings C. Litzenberg, Minneapolis: In 1914 I sounded a warning against the promiscuous use of pituitary extract. My warnings were based on the observation of a relatively small number of cases, but it seemed to me that there was much danger of rupture of the uterus. Another indication, one which has not been mentioned by the essayist or in the discussion, is that of hemorrhage in the brain of the fetus, which we have seen in cases in which labor was entirely normal in every way except that pituitary extract was given at the end, when labor had nearly stopped, with the head on the perineum. The baby, alive at the time the pituitary extract was given, was born dead in a short time, and the postmortem showed hemorrhage of the brain. This paper is certainly timely for its warning against the promiscuous use of pituitary extract. I hope it will have the effect that no one will ever give an ampule of pituitary extract before the baby is born, but only very small doses before delivery; also, that it shall never be given, except in the most exceptional circumstances, before the cervix is fully dilated, and even after that with the greatest care and with ample preparations for complications.

Dr. C. S. Bacon, Chicago: One phase of this subject which has not been alluded to is the medicolegal question. I have seen a number of cases in which this phase of the problem was encountered. I know of one case in which a practitioner was blamed because he did not use pituitary extract in place of doing a forceps operation which resulted unfortunately. In a case in which pituitary extract is used and the baby born dead, or where there are serious lacerations of either the cervix or perineum or of the pelvic outlet, there is a greater legal risk. This feature should be considered carefully. The initial dose of pituitary extract should always be small. For some years I have not ventured to give more than from 3 to 5 minims of the extract as the beginning dose. When, however, a patient does not react to this dose, I do not hesitate to give more, but under exceedingly careful observation of the case.

Dr. W. P. Manton, Detroit: I have tried out pituitary extract in a limited number of cases and my findings agree practically with Dr. Kosmak's experience. The period of rehabilitation of which Dr. Litzenberg speaks is one of special importance for the general practitioner, and will probably never arrive.

AVOIDABLE TRAUMATIC ABDOMEN *

JOHN B. DEAVER, M.D.
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At this time when so much unavoidable injury is occupying the attention of the surgical world, the surgeon in civilian practice is more than ever shocked on being confronted with traumatism that could be avoided. This was forcibly brought home to me recently while operating for symptoms of a severe abdominal lesion:

A colored woman, aged 49, had been operated on twelve years previously (operator unknown) for a tumor of the uterus, abscess and appendicitis. After two months at the hospital, she had been dismissed in good condition and had remained perfectly well until her present illness, which had set in with severe abdominal pain six days prior to her coming to the hospital.

I was not a little astounded to find the trouble to have been caused by a pair of hemostatic forceps 8 inches long, one half of which was found in the sigmoid and the other half in the lower ileum which it had perforated, producing a spontaneous ileosigmoidostomy. The instrument was removed and the bowel closed; it was corroded but not covered with a membrane. The entire lower abdomen, the site of a purulent peritonitis, was tied up with adhesions, some of which it was deemed best not to attempt to separate. The patient made an uneventful recovery and was discharged in good condition one month after operation.

The case appears unique, both for the length of time the foreign body had been within the abdominal cavity without causing any trouble and for the unaccountable manner in which the instrument had separated and found lodgment in different parts of the bowel.

CAUSES AND EFFECTS OF OPERATIVE OVERSIGHT

Numerous systems and devices have been suggested to avoid this accident, but they are usually more or

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less cumbersome and often fail of the very purpose for which they are designed. In the last analysis, the proper organization of the operating room is the vital factor in preventing this mishap. The essentials are absolute quiet, a permanent staff of well trained, reliable assistants, each assigned to a particular task, whose conscientious and concentrated attention to this task and unremitting persistence in tracing any piece of gauze or instrument that may be missing is second only to the vigilance of the operator himself. Those of us who are fortunate enough to have at our command such a staff are also fortunate enough not to have such an oversight on record.

Some surgeons, who with commendable frankness have published their sins in leaving a foreign body within the abdomen during operation, have offered extenuating circumstances to explain the misfortune, such as unusually difficult and prolonged operation with threatened collapse of the patient and necessarily hurried termination of the operation in order to save life. The oversight would be possible in such circumstances, especially if the operator was young, but it is here where the training of his staff proves of inestimable worth.

The possible dire results of the occurrence are threefold: death, prolonged suffering and often abscess formation, usually with recovery, and not infrequently a lawsuit, which, no matter how it terminates, means an irretrievable loss of time and of reputation to the surgeon.

Fortunately, a beneficent provision of nature enables the peritoneal cavity to protect itself from the evil effects of a foreign body in its midst, and its presence is often one of the surprises of the postmortem table. In a great many instances, too, the forgotten object is passed spontaneously through the rectum and sometimes it is recovered through an abscess or a sinus. But more often it entails a secondary operation immediately after the primary one, or, as in our case, at some more or less remote period afterward. The outcome is not always so fortunate, for death as the result of the presence of the foreign body and its attendant complications is the result in more than one fourth of the reported cases.

PERFORATION OF THE UTERUS

This type of avoidable traumatism suggests another type which is perhaps less pardonable than the foregoing and which is attended with equally unpleasant possibilities. I refer to perforation of the uterus. The avoidance of this accident is entirely a matter of instruction and technic. The frequency with which it is still reported (and it is probably not reported as often as it occurs) would seem to indicate that curettement is still considered an easy and simple operation which every beginner may safely undertake. The fact of the matter is that it is a serious operation and that only the experienced surgeon is able to recognize when a false passage has been made and can at once proceed to correct it. The tyro in surgery usually does not know what he has done or realizes it only when to his horror he finds that what he is drawing out is not membrane but intestine. In other words, the expert immediately knows when he is encountering unusual conditions, such as soft uterine tissue, which offers no resistance to any instrument, or abnormal anatomic relations, such as retroflexion; and he acts accordingly. In the event of perforation, prompt action usually prevents any untoward result and recovery takes place. But should the accident happen to one who is not experienced, death is the more common result, due often to imperfect aseptic precautions and lack of training or lack of proper facilities to do an abdominal section to repair the injury.

One way of avoiding the accident is by careful preliminary estimation of the position, mobility, consistency, and, if possible, contractility of the uterus, and by noting the presence of obstruction, such as tumors, and the condition of the adnexa. Another way is to use nature's best curet, the fingers of the experienced surgeon. Should an instrument be required, it should be a dull one, preferably placental forceps. The dull curet may, but the sharp one does do harm. The former removes epithelium but the latter removes mucosa as well, which leads to a permanent loss of substance, for repair in such an event takes place by the formation of connective tissue and produces a focus of reduced resistance and a predisposition to rupture.

It is also well to remember that perforation of the uterus has resulted in some instances from the injection of caustic solutions, such as chlorid of iron or of zinc, tincture of iodin, etc. In the special cases in which such solutions are found necessary, they should be applied with a swab.

RUPTURE OF THE UTERUS

In the list of avoidable abdominal traumatisms, we must also include rupture of the uterus with its shockingly high maternal and fetal mortality. While it is possible that a percentage of the complete traumatic ruptures produced by operation have been preceded by a slight degree of spontaneous rupture of the uterus, there is sufficient evidence to show that by far the greater number of cases are actually traumatic, the direct result of inexperience and ignorance, of failure to recognize that rupture is threatening or at least to recognize that things are not as they should be, of faulty manipulation, hasty instrumentation, and, in not a few instances, of the administration of pituitary solution.

The only hope of improving the dark prognosis of this very serious condition is abdominal section at the first sign of spontaneous rupture. Any other procedure, such as drawing the fetus through the rupture and delivery in the natural way runs the risk of additional injury and of infection and is also contrary to the principles of good surgery which abhors work in the dark, but prefers the light by which it may see well what is to be done and do well what is to be done.

In a few exceptional cases, when the rupture is in the lower uterine segment, packing the uterus and the pelvic cavity with gauze has given good results, but when the rupture is anterior or lateral and when there is marked hemorrhage and the placenta or the fetus has escaped into the abdominal cavity, abdominal section is imperative and most likely a hysterectomy will be required. The safest course in all ruptures is operation.

The advantage of abdominal section is the opportunity it presents of complete cleansing of the operation area, control of hemorrhage, examination and proper treatment of the collapsed intestine, and the possibility of conservative treatment of the ruptured organ. Supravaginal amputation which is advocated by some surgeons, it is true, preserves the pelvic floor intact and permits menstruation, but it removes the

sound and noninfected corpus and allows the lacerated cervix to remain. For this reason, total extirpation is better when the vaginal portion is torn and requires suture.

The best thing, however, is to do everything possible to avoid the accident by careful study of conditions—the comparative size of the fetus and the pelvis and the degree of expulsive power. The ability to recognize impending rupture, and prompt action to resist it are greatly needed.

USE OF NITROUS OXID GAS

A few words with regard to nitrous oxid gas and nitrous oxid and oxygen anesthesia in surgical and obstetric work may not be out of place in this connection.

While I have found this form of narcosis useful in short operations, especially appendectomy in chronic appendicitis, I should not be inclined to advocate it for more extensive and prolonged work. Its great disadvantage seems to me to be that it does not give complete anesthesia, and thus it prevents that perfect relaxation of the patient and at the same time that perfect control by the surgeon, who should be monarch of all he surveys. The amount of gas to be given is also difficult to determine even after extended practice in its administration, and the surgeon's attention is apt to have to be divided between the state of his patient and the work he is doing, at least more so than with ether anesthesia in the hands of a competent anesthetist.

Conservation, the watchword in civilian life today, has ever been the watchword of medicine. It behooves us at this time more than ever, by precept and by example, to leave nothing undone that will avoid unnecessary suffering and unnecessary risk to life, also unnecessary drain on our much depleted hospital and teaching staffs, to say nothing of the drain on the purse of the patients. It is for these reasons that I have chosen to sound this warning note at this time.

ABSTRACT OF DISCUSSION

Dr. Stephen E. Tracy, Philadelphia: Two or three years ago a patient came under my observation complaining of symptoms from a mass in the middle zone left side of the abdomen. The patient was studied carefully and finally a diagnosis of malignancy of the colon was made. At operation a block dissection was made; over half of the transverse and nearly all of the descending colon was removed. There was an opening between the mass and the lumen of the colon through which a piece of gauze protruded. The cavity when open revealed a considerable quantity of pus and a gauze pad. The patient had had a hysterectomy seventeen years before. She had had no symptoms from the gauze until about six months before she came under our observation.

Dr. Peter B. Salatich, New Orleans: Some time ago a man told me that he had resected 3 feet of bowel and the woman got well. It was learned that he had curetted the womb for abortion. He curetted and curetted and did not recognize the condition until the bowel was hanging out of the vagina. He had taken out 3 feet of bowel and boasted of what a wonderful operation he had performed.

Dr. Emil Novak, Baltimore: I saw a case of perforation of the genital tract which was rather striking in that severe injury to the intestine was caused by the patient herself. The patient was brought to the hospital, apparently moribund. A few days before, thinking she was pregnant, she had introduced a rough splinter of wood into the vagina, directing it upward in the general direction of the uterus. A few hours later she had a desire to defecate. During the straining she felt something come out between her limbs. She did not know what it was, but, nevertheless, she took a pair of scissors and cut it off. It proved to be a loop of her own intestine. Dr. Deaver has done a service to gynecology in emphasizing the dangers of curettage, usually considered a very simple operation. Nevertheless, the dangers of operation are not nearly so great as Dr. Deaver has painted them—certainly not great enough to justify the routine performance of transperitoneal hysterotomy. While the danger of perforation of the uterus is a real one, the accident should not be of very frequent occurrence if the operation is done with the proper care. As a rule, the uterus is perforated on the instroke of the curet. I have often seen men, in using a curet, grasp it as if it were a poker, thrusting it forcibly into the fundus. The instrument should be allowed to slide up toward the fundus practically by its own weight. The outward stroke can be made much more briskly, for there is little danger of perforating the uterus during this step of the procedure.

Dr. Deaver's allusion to the subject of rupture of the uterus interested me, especially because of a recent personal experience. In this case the rupture followed a previous cesarean section, and was noteworthy because of the absence of the shock and hemorrhage usually observed in uterine rupture. I saw the woman in consultation six weeks after the expected date of confinement. At the latter time she had had a spurious labor which had left her with a moderate amount of abdominal soreness. The woman had, however, been walking about the hospital and feeling fairly comfortable up to the time I saw her. In view of the absence of a presenting part or fetal heart sounds, rupture of the uterus, with extrusion of the fetus into the abdominal cavity, was diagnosed. At operation a large macerated fetus was removed from the abdominal cavity, the ruptured uterus having undergone involution and having again become a pelvic organ. Rupture of the uterus had apparently been attended with no hemorrhage, probably on account of the tamponlike action of the fetal head as it was extruded through the uterine wound.

Dr. A. E. Walker, Anthony, Kan.: I was called to curet a woman from whom a young physician had removed 40 inches of bowel. I opened the abdomen and found two perforations in the anterior wall. The uterus was retroflexed, making perforation quite easy.

Dr. A. P. Butt, Davis, W. Va.: I do not think the impression ought to be allowed to go out that these are all avoidable accidents. We are not all surrounded with the appointments which Dr. Deaver has in his operations, and these accidents are bound to occur. Those of us who attended Dr. Murphy's clinics remember how sponges were counted and foreign bodies explored for. He always did that, and I presume Dr. Murphy had some reason for so doing.

Dr. John B. Deaver, Philadelphia: I am much obliged to the gentlemen for discussing my paper. After years of experience in removing foreign bodies, this instance in which the forceps were found, after having separated and perforated the bowel, was unique.

Progress in China.—The usual missionary program, with its threefold emphasis on education, medicine and religious teaching, is in China the agent of reconstructing whole communities and of creating a new type of life. In hundreds of cities and villages today these effects are evident: an increase of general intelligence; a greater capacity on the part of young men and women to support themselves well, due to the training obtained in church and school; a decrease of prevalent diseases; cleaner and more beautiful homes; a new appreciation of the dignity of womanhood; a deeper interest on the part of the community in the welfare of the defectives and of the poor; the breaking down of fixed and hardened social customs and a greater ambition and zest to life on the part of young men and women; a new spirit of unity and cooperation in the Christian community; the breaking down of the bondage of demonology and a release of high spiritual hopes and aspirations. While all these effects are not evident in every community, they are the obvious effects of Christian missions in China.—J. S. Burgess, the *Survey*.

TREATMENT OF PREMATURITY*

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It is my purpose to present in this paper the method and the results of the treatment of premature infants in the University of Minnesota Hospital. The material studied includes sixty prematurely born infants, all being born at, or otherwise admitted to, the clinic from September, 1914, when the department of pediatrics assumed charge of the new-born infants' clinic, until the close of 1917.

It is noteworthy that Litzenberg's[1] report of the efficacy of the four-hour feeding interval for premature infants, the first report in American literature, came from the obstetric service of the same hospital. As Litzenberg states, he was led to adopt the long interval by observing its success in a premature baby that vomited whenever a shorter interval was tried. No less an authority than Czerny had previously recommended that the premature baby be given no more than six feedings in the twenty-four hours. Since Litzenberg's paper, another by Grulee[2] has appeared reporting success with, and advocating the use of, the four-hour feeding interval, stating that it tends to prevent overfeeding, to avoid vomiting, a serious complication, and to avoid disturbing the infant.

Our experience supports Grulee's summing up, and we see only one disadvantage of major importance inherent in the practice of four-hour feeding. This is that in certain homes where insufficient effort is made thoroughly to empty the breasts, they will be inadequately stimulated and the milk supply will suffer correspondingly.

The babies in this series were fed breast milk on the four-hour interval, with a few exceptions in the second month, no other food was used. Many of them were tube-fed for varying lengths of time, a procedure first employed by Tarnier,[3] and later advocated by Rott[4] and by Langstein.[5] The tube, a small, soft rubber catheter attached to a glass funnel, was passed by mouth and inserted about 15 cm. No injury to the babies ever resulted. The tube feeding was continued until the babies were able to nurse or take the bottle successfully. The smaller babies, weighing 2,000 gm. and less, accomplished this, on the average, at the end of the first month. Only one required two months before being able to take the breast. Two thirds of the infants with a birth weight of more than 2,000 gm. took the breast successfully in the first week. Only three needed to be tube-fed in the third week.

Table 1 shows the birth weights of the babies who survived and the day on which they began to take considerable nourishment directly from the breast. Nearly half these babies, however, required complemental feedings for a week or two longer, that is, they were weighed before and after nursing, and the deficiency was made up by tube or bottle. The breast supply of the mothers was kept up by manual expression or pumping, many of them sending their milk in twice a day by messenger.

Feeding, as a rule, was begun on the second day, the initial amounts being usually from 15 to 30 gm. six times in twenty-four hours. Oberwarth,[6] Birk[7] and Ladd[8] have found the daily caloric need of the premature infant to be slightly in excess of 100 calories per kilogram. Salge[9] and Budin[10] place the amount about 50 per cent. higher, while Czerny and Keller give figures that lie between the two. According to Birk, after the tenth day, the premature baby needs about one seventh of his body weight in breast milk daily. It would seem—and this was our experience—that no average applies to the individual baby. The chief factor to be considered is that the baby's tolerance for food must not be overstepped. Vomiting (other than an occasional slight regurgitation when the tube is withdrawn) seems to be the first danger signal, and on numerous occasions the baby's ration was temporarily reduced when this appeared. Certainly one should not wait for other evidences of overfeeding, such as diarrhea or irregular temperature.

TABLE 1.—BIRTH WEIGHT, CONTROL OF TEMPERATURE AND DATE OF FIRST SUCCESSFUL NURSING IN SURVIVING INFANTS

Case Number	Birth Weight, Gm.	Day on Which Temperature Was First Controlled	Day of First Successful Nursing
8840	1,505	28	32
8075	1,540	33	48
10577	1,640	30	42
8074	1,670	28	71
10698	1,710	28	21
11744	1,800	—	34
12619	1,800	14	10
11112	1,870	37	19
11457	1,925	21	12
11621	1,930	10	26
9838	1,940	72	67
12490	1,960	—	18
7570	1,965	15	6
6536	2,000	21	34
7992	2,000	8	30
7993	2,050	8	28
12871	2,060	22	12
8073	2,120	29	25
8347	2,135	13	1
11665	2,180	8	10
9165	2,260	17	10
10235	2,280	—	2
9267	2,300	1	4
12876	2,300	—	6
9703	2,370	18	15
8590	2,280	—	3
11390	2,400	3	4
7427	2,440	—	5
9069	2,440	24	5
10926	2,450	—	4
9811	2,455	5	2
8731	2,480	—	2
7870	2,595	3	6
11883	2,630	—	9
7456	2,815	12	4
7514	2,860	3	3

ADJUSTMENT OF TEMPERATURE

Incubators were not used. Instead, the babies, clad in flannel hoods and capes, were kept in blanket-lined clothes baskets containing hot water bottles. The bed temperatures were charted along with that of the baby, and held at between 85 and 90 F. Genersich[11] gives this as the optimal temperature for the premature infant's bed. None of our babies that were unable to

* From the Department of Pediatrics of the University of Minnesota, Dr. J. P. Sedgwick, professor and chief of the department.

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1. Litzenberg, J. C.: Long Interval Feeding of Premature Infants, Am. Jour. Dis. Child., December, 1912, pp. 391-409.
2. Grulee, C. G.: Care and Feeding of Incubator Babies, Surg., Gynec. and Obst., 1915, **20**, 234-239.
3. Tarnier, quoted by Budin, P.: The Nursling, London, 1907, p. 28.
4. Rott: Zur Ernährungstechnik frühgeborener Säuglinge, Ztschr. f. Kinderh., 1912, **5**, 134-174.
5. Langstein, L.: Ernährung und Wachstum der Frühgeborenen, Berl. klin. Wchnschr., 1915, **5**, 631-634.
6. Oberwarth, E.: Pflege und Ernährung der Frühgeburten, Ergebn. d. inn. Med. u. Kinderh., 1911, **7**, 191-223.
7. Birk, W.: Ueber den Nahrungsbedarf frühgeborener Kinder, Monatschr. f. Kinderh., 1910, **9**, 279-323.
8. Ladd, M.: The Results of Substitute Feeding in Premature Infants, Arch. Pediat. 1910, **27**, 416-426.
9. Salge: Einführung in die moderne Kinderheilkunde, Berlin, 1909.
10. Budin, P.: The Nursling, London, 1907, p. 6.
11. Genersich: Der Einfluss der Wärme auf die Temperatur der Säuglinge, Monatschr. f. Kinderh., 1910, **9**, 183-199.

maintain a normal body temperature with a bed temperature of 90 were able to do so when the bed temperature was higher. Our charts show that when the baby can maintain a normal monothermia with the aid of hot water bottles, the temperature will remain between 98 and 99 F. without them.

The bed temperatures were taken and charted after artificial heat was discontinued, and in babies that were controlling their body temperatures the bed temperatures were uniformly between 85 and 90 F. The temperatures of the bed of another premature baby, whose own body temperature remained between 97 and 98 F., was constantly in the neighborhood of 80.

Fifteen of the babies who survived had birth weights of 2 kg. or less. On the average, they were able to control their body heat by the twenty-seventh day. Only three required hot water bottles longer than a month. One, however, needed artificial heat until he was 72 days old. None of the premature babies with a birth weight of more than 2,000 gm. required artificial heat after the first month. Twenty-one of these survived and only three needed it in the fourth week. Table 1 shows the day on which the infants began to maintain their body temperature without artificial heat.

The babies were bathed with olive oil and wiped dry with warm flannel. An aseptic nursing technic was followed, nurses and doctors washing their hands before and after contact with the infants, and wearing gauze masks if suffering with any respiratory infection, however mild. The mothers of premature infants were carefully watched, and at the first sign of coryza were made to wear masks while nursing their babies.

STATISTICS OF MORTALITY FOR SURVIVORS AND NONSURVIVORS

Of the sixty premature infants, thirty-six lived and twenty-four died, giving a gross mortality of 40 per cent. Fourteen deaths, however, or 58 per cent. of the total number of deaths, occurred on the first day. Necropsies were done on twelve of the fourteen babies,

TABLE 2.—RECORDS OF PREMATURE INFANTS SURVIVING SIX DAYS

Case Number	Birth Weight, Gm.	Day of Death	Probable Cause of Failure	Pathology
11134	975	8	Gradual decline in body temperature	No necropsy
8385	1,450	13	Gradual decline in body temperature	Necropsy negative
7910	1,500	6	Gradual decline in body temperature	Necropsy negative
7205	1,675	51	Parenteral infection. Mother had open pulmonary tuberculosis	Necropsy negative
9097	1,825	43	Overfeeding with breast milk. Babe's tolerance exceeded, vomiting. Diarrhea, eczema. Mother had tuberculosis	Necropsy negative
10168	2,180	25	Hematemesis. Syphilis.....	No necropsy

and in five instances definite and adequate causes for death were found. There was extensive visceral syphilis in two cases, anencephalus in one, intraventricular hemorrhage in one, and a fractured dorsal vertebra with a lacerated spinal cord in one. Two died on the second day, one on the third, one on the fifth, and one on the sixth, all with cyanosis and a gradual decline in body temperature. One infant survived until the eighth day and another until the thirteenth day, both showing throughout a slowly falling temperature. Necropsies were done in five of the seven cases without a satisfactory cause of death being found. Of the remaining thirty-nine babies, one with syphilis died on the twenty-fifth day of hemorrhage from the stomach, and one died on the forty-second day because his tolerance for breast milk had been overstepped. This baby apparently had taken his food well and was making a satisfactory gain in weight; but the food was increased too rapidly, the warning signal of vomiting was disregarded, diarrhea and eczema developed, and thereafter a quantity of nourishment great enough to maintain life could not be tolerated. The only other death occurred on the fifty-first day in a baby that contracted rhinitis from

TABLE 3.—RECORDS OF PREMATURE INFANTS SURVIVING LESS THAN SIX DAYS

Case Number	Weight, Gm.	Day of Death	Pathology
7457	.....	1	No necropsy
12900	.....	1	No necropsy
7996	.....	1	No necropsy
898	.....	1	Necropsy negative
7771	630	1	No necropsy
10104	660	1	Necropsy negative
12895	700	1	Necropsy negative
6002	1,000	3	Necropsy negative
11208	1,185	1	Hemorrhage into left lateral ventricle
70	1,210	1	Anencephalus. Pulmonary hemorrhage
303	1,250	5	Necropsy negative
3	1,470	1	Necropsy negative
11439	1,570	1	Necropsy negative
8617	1,885	1	Fracture fifth dorsal vertebra, laceration of spinal cord
34	1,900	1	Syphilis
35	1,910	1	Syphilis
11490	2,200	2	No necropsy
958	2,220	2	Necropsy negative

some careless attendant; the temperature became irregular, the tolerance for food was lost and death ensued. The last two babies were born of mothers each of whom had an open pulmonary tuberculosis. No tuberculosis was found at the necropsies of the infants, but, as Reiche[12] has pointed out, maternal tuberculosis exerts a harmful influence on the premature infant, even when the latter does not suffer from the disease.

Budin pointed out the great importance of initial chilling in producing the death of the premature infant. This most frequently occurs when the baby is born outside the hospital. Consequently, while our mortality rate is much increased by the fourteen infants who were born there and died on the first day, it suffered very little from the deaths of infants who were brought in from outside to die later. Only one such death occurred.

Table 2 shows the birth weight, the age at death and its cause in the six infants who survived longer than five days. Similar data concerning the eighteen infants who died in the first five days is contained in Table 3. It is a question as to how many of these babies were viable.

PROGRESS OF SURVIVING INFANTS

A summary of the more important information gleaned from the records of the surviving babies is presented in Table 4. It shows the progress of each baby, the ability to control temperature, to nurse, and to gain in weight. The age figures are given in days, the weights in grams. The + signs in the tenth column signify that complemental feeding was still necessary at the time of discharge, those in the eleventh, that the baby was nursing well at discharge, and those in the twelfth that at that time he was gaining satisfactorily.

The parallelism between the ability fully to control body temperature and to gain satisfactorily in weight

12. Reiche, A.: Das Wachstum der Frühgeburten in den ersten Lebensmonaten, Ztschr. f. Kinderh., 1915, **12**, 369-401.

is noted. Six of the nine babies that were discharged before they were able to maintain a normal monothermia were not yet making a good gain. Because of the advantage of keeping the baby with its mother, all infants were discharged as soon as it seemed safe to discharge them. All but two babies, however, were either nursing well or gaining satisfactorily at the time of leaving the hospital. Only three infants remained in the hospital longer than two months, and two of these developed marked pallor and craniotabes in the third month. As has been pointed out by Rosenstern[13] and others, the so-called pseudorickets uniformly occurs at this period of premature life. These babies were given iron and cod liver oil and showed improvement. It would seem advisable, if not contraindicated, to start such medication as early as the second month.

TABLE 4.—PROGRESS OF SURVIVING INFANTS IN WEIGHT, CONTROL OF TEMPERATURE, NURSING ABILITY, ETC.

Case Number	Weight at Birth, Gm.	Day on Which Babe First Controlled Temperature	Day of First Bottle Feeding	Day of First Breast Feeding	Age at Discharge	Weight at Discharge	Day Artificial Heat Was Discontinued	Complemental Feedings Necessary at Discharge	Nursing Well at Discharge	Gaining Satisfactorily at Discharge	Remarks
8890	1,505	28	32	32	38	1,870	28	—	+	+	
8075	1,540	33	52	48	55	2,360	—	+	—	+	
10577	1,640	30	—	42	49	2,360	31	+	—	+	
8074	1,670	28	—	71	141	4,150	74	+	+	+	
10608	1,710	28	—	21	28	1,860	—	—	+	+	
11744	1,800	—	31	34	59	1,910	—	—	—	—	Much artificial feeding; mother did not cooperate
12619	1,800	14	4	10	59	2,800	15	—	+	+	
11112	1,870	37	18	19	38	2,100	16	—	+	+	
11457	1,925	21	—	12	28	2,640	—	+	—	+	
11621	1,930	10	10	26	39	1,830	27	—	+	+	
9838	1,940	72	67	—	168	3,770	—	—	+	+	Pseudorickets
12490	1,960	—	18	18	32	2,120	—	—	+	—	Temp. not controlled; weight gain slight
7570	1,965	15	..	6	19	1,950	—	+	—	+	Pseudorickets
6536	2,000	21	34	..	151	4,350	—	—	—	+	
7992	2,000	8	29	30	39	2,280	—	+	—	+	
7993	2,050	8	29	28	38	2,380	—	+	—	+	
12871	2,060	22	—	12	31	2,460	—	+	—	+	
8073	2,120	29	25	25	38	2,540	—	+	—	+	
8347	2,135	13	—	1	24	2,030	—	+	+	+	
11665	2,180	8	—	10	13	2,520	—	+	—	+	
9165	2,260	17	—	10	25	2,220	—	+	—	+	
10235	2,280	—	—	2	15	2,210	—	—	+	+	
9267	2,300	1	—	4	11	2,060	—	—	+	—	Temp. slightly subnormal; weight stationary
12876	2,300	—	—	6	10	2,290	—	+	+	+	
9703	2,370	18	—	15	26	2,630	18	—	+	+	
8590	2,380	—	—	3	10	2,220	—	—	+	—	Temp. not controlled; weight stationary
11390	2,400	3	—	4	11	2,310	—	—	+	+	
7427	2,440	..	.	5	11	2,160	—	—	+	—	Temperature 97 to 98 F.
9619	2,440	24	—	5	33	2,630	—	+	+	+	
10926	2,450	—	—	4	12	2,430	—	—	+	+	Temperature above 97 F.
9811	2,455	5	—	2	10	2,430	—	—	+	+	
8731	2,480	—	—	2	12	2,470	—	—	+	+	
7870	2,595	3	5	6	10	2,330	—	—	+	+	
11883	2,630	—	—	9	11	2,580	—	+	—	—	
7456	2,815	12	..	4	16	2,600	—	—	+	+	
7514	2,860	3	..	3	9	2,630	—	—	+	+	

CONCLUSION

It is found that of sixty infants fed breast milk on the four-hour interval, by tube when necessary, kept sufficiently warm and protected against infection, thirty-six lived and twenty-four died, a gross mortality of 40 per cent. When, however, one deducts the fourteen deaths occurring on the first day, the mortality rate of the remaining forty-six cases falls to 22 per cent.

The most favorable view of the treatment employed is gained if only the forty-two babies living longer than five days are considered. Among these, including two who by better judgment and technic could have been saved, there were six deaths, giving a mortality of 14 per cent.[14]

13. Rosenstern, I.: Hunger im Säuglingsalter und Ernährungstechnik, Deutsch. med. Wchnschr., 1912, **38**, 1834-1839.

14. In addition to the references already given, the following will be found of interest:
La Fetra, L. E.: The Hospital Care of Premature Infants, Arch. Pediat., 1916, **33**, 352-356.

ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: I have been much interested in the question of the premature infant for several years. It is much better practice to decide daily how much milk the baby shall have, by any method you choose. Write on the directions just the quantity of milk the baby should have each day, and the nurse should be instructed to give that amount in twenty-four hours. In other words, prescribe daily rations, and then try to get it to the baby. Sometimes you can do it on a four-hour schedule, and sometimes you have to feed more often to get the proper quantity. The feeding is the most important part of the care of the premature infant, not the regulation of the temperature. I always try to work on an energy quotient of 120 to 130 by the tenth day. I commence usually with only one fourth of that quantity—one fourth of 120, or an energy quotient of about 30 the first day, and gradually increase from day to day, until we have worked up to 120 or 130. This varies with the baby. I do not believe the interval makes any material difference. What does matter is that you get into the baby the required quantity of food. The symptom of cyanosis which comes frequently is due to apnea, and may frequently be due to exhaustion. There is not enough energy to keep up respiratory efforts. It is necessary to get sufficient food into the baby, regardless of the intervals between feedings.

As to the question of temperature, I think it is a little high in this paper. With a small baby, under 2,000 gm., it is necessary to commence with a temperature of from 85 to 90; you want to gradually reduce this temperature, because slightly overheating a baby often produces cyanosis, and not only that, it seems to diminish the internal power of oxidation. I like to keep the baby as cool as possible, and still maintain a bodily temperature of at least 98 degrees. The most important symptom to combat with a premature baby is apnea. Cyanosis is liable to occur in any feeble infant. To prevent this, in the first place I think a proper fat supply should be maintained. It might occur, of course, from overfeeding or from infection. These cases are always given some respiratory stimulant, in addition to oxygen to dispel the cyanosis, usually caffein or small quantities of tea. I

think caffein is very helpful in stimulating the respiratory centers.

Dr. Isaac A. Abt, Chicago: I presume four-hour feedings will work out in a certain number of cases, even with premature babies. It seems to me that if a premature baby is fed only once in four hours, it will have to take a larger quantity at each feeding than if it were nursed every two or three hours. A baby's stomach at this time is naturally limited in size, and it appears to me that one gets better results if the baby is fed small quantities at relatively frequent intervals. I do not believe that the four-hour feeding plan should become a dogma. I see men who believe it is their whole business to have a baby fed only once in four hours, and if they think you order feedings every three hours they stand aghast. After all, we are dealing with individuals, and while a certain number of prematures may do well on four-hour feedings, I believe most prematures should be fed more frequently—possibly every two or three hours. Budin laid down the principles in his little book that prematures suffer from two great troubles—one, difficulty in maintaining body temperature, and secondly, most of them fail to prosper because of insufficient food. It seems to me, in order to supply the amount of food they need, they should be fed small quantities at frequent intervals. Dr. Taylor has already made the point that these babies should receive breast milk. This should be emphasized over and over again. Premature babies who are fed malted milk or condensed milk, or even cow's milk diluted, are extremely difficult to raise. I believe no real success can be obtained with these infants unless they receive breast milk.

Dr. Lawrence T. Royster, Norfolk, Va.: Most of the work I have done with prematures has been in private practice, outside of hospitals—a number were in outlying country districts where facilities were few and nurses often not available. I have met with some degree of success. As Dr. Abt has said, we must consider the individuality of the patient. The stomach of the premature infant varies just as much as the full-term infant's stomach does. Therefore, the ratio between the quantity given and the size of the stomach must be studied individually. I do not believe I ever fed a premature infant at four-hour intervals. From the standpoint of a private practitioner, outside of hospitals, I do not believe that it is feasible without a stomach tube. I do not use a stomach tube frequently because I have not often a person near who is qualified to do it. Of course, where there is no nursing power, that is essential. My most frequent interval for the first few days is two hours, and 1 to 2 drams is all that we can get in. I have tried a larger amount and a longer interval, but found that the babies did not thrive. Breast milk in these cases is almost a sine qua non. Some of the smallest premature babies I have ever reared never had a drop of breast milk. My plan in these cases has been to start with whey. Some will criticize this. However, I am talking from experience. Whey, diluted or whole, according to the patients' ability to assimilate, is a very good substitute for tiding over this time. After they take this, I then go to a straight modification of cow's milk.

Prematurity, of course, is a terrible handicap for a baby. A great many premature babies come as a result of various "accouchement forcé" methods which may be necessary on account of the condition of the mother. I do not wish to enter into a discussion of cesarean section, etc., but we have found that premature babies who have come as a result of cesarean section have given us an easier task than those brought into the world by rapid dilatation, and then the necessitated handling of the child with forceps.

Dr. Frank C. Neff, Kansas City, Mo.: I think we should not overlook one thing Dr. Taylor has mentioned, and that is the aseptic handling of these babies. As you all know, premature babies are a matter of great curiosity. I have found it very difficult to keep visitors away, and it can easily be seen how infection can occur. As to what Dr. Royster said as to feeding these babies with a tube, I do not think it is particularly difficult. On several occasions I have shown the mother how to use the tube, and she has done it successfully. I want to ask Dr. Taylor one thing: At what period does a gain in weight usually begin?

Dr. Jane M. Ketcham, Indianapolis: Premature babies should not be overhandled. With them I use a stomach tube every four hours for the first week. In the effort to get the child to nurse it is often handled too long and becomes chilled, and thus you defeat your own end. The stomach tube is a great advantage. After the child has the strength to nurse it is better for it to make the effort. It is an advantage to have the baby weighed before and after every feeding, so that we may know how much it is receiving. The symptom of vomiting is of the greatest importance and must not be overlooked, because when a child once begins to vomit it is impossible to know how much food it is retaining or for it to retain sufficient. The symptom of cyanosis can best be treated by oxygen, hypodermically, or by 5 to 20 per cent. glucose solution. The body fluids must be kept up at all costs. This is equally as important as maintaining an equable temperature. Great care must be taken not to overhandle a child.

Dr. Jules M. Brady, St. Louis: When this four-hour interval was first called to my attention in 1910, I did not see how it was possible to get sufficient nourishment into a premature infant in this way. It is like everything else—we have to try it to be convinced. Having had experience in numerous hospital cases, I have been convinced. There is one symptom that will throw a scare into one, and that is vomiting. When this appears, I think the chances of bringing through the premature are diminished. Feeding breast milk at four-hour intervals I think is the best method to prevent the appearance of this vomiting, which is so dangerous to the premature infant. If you cannot get breast milk, as sometimes occurs, I believe it is necessary to feed at shorter intervals.

Dr. Jay I. Durand, Seattle: Hunger is a detriment to a baby, and keeping babies on a starvation diet has, I think, done more damage than any other one fault in our infant feeding. Barley water for more than a twenty-four-hour period is never necessary in gastro-intestinal disturbances, and no variation of the normal feeding need be made in parenteral disturbances except the reduction, which no child voluntarily makes by refusing part of the nursing. The younger the baby, the greater is the danger from hunger. In prematures, the four-hour interval is the best. I had one premature of 2 pounds 3 ounces, which gained beautifully on four-hour feeding intervals, but you must see to it that the infant gets enough to cover its caloric needs. If the baby does not take enough from the breast, bottle, dropper or Breck's feeder, gavage must be used.

Dr. Edgar J. Huenekens, Minneapolis: I am especially interested in the rickets or pseudorickets that these premature infants develop. In a recent series of cases, I found 92 per cent. showed evidences of rickets. I believe this depends on a shortage of calcium in the infant's organism. Basing my treatment on the work Schloss has done in the treatment of rickets in breast-fed infants, I give these babies tricalcium phosphate with cod liver oil. I use a 10 per cent. mixture of tricalcium phosphate in an emulsion of cod liver oil. The results seem to warrant further trial.

Dr. Harry Lowenburg, Philadelphia: Several years ago in discussing this subject, I took the stand that we should treat the individual. It is very dangerous to become dogmatic about anything in medicine, especially infant feeding. Another thing comes to my mind, and that is that in passing the tube to feed these infants, it is much easier in my experience to pass it through the nose. I have also used a 5 per cent. sterile solution of glucose injected through the anterior fontanel directly into the longitudinal sinus, and I feel that it has done some good. Obstetricians are the chief offenders in destroying the maternal milk supply. I think that they should be told that either they should learn the principles of infant feeding, or leave the premature infant alone, as well as other infants.

Dr. F. C. Wahrer, Fort Madison, Iowa: Prematurity is the exception, and when we are making rules, let us not forget the exceptions. When you make a rule for all, you must use the rule and the exception; in some cases the rule may apply, in some the exception—and in some others the exception to the exception. Suppose a child is born four weeks too soon. At the end of two months is it 4 weeks old or 2 months? Does it still partake of the condition in utero pertaining

before its birth? If it does, then there is some good sense in feeding a child at four-hour intervals, which would not have been fed anything if it had remained those four extra weeks in utero. I think it is a question whether it even needs to be fed as often as Dr. Taylor suggests. But since we cannot make rules for every child, we must adopt separate rules for each child, as I am sure that some premature children must be fed oftener than other equally premature children.

DR. ABRAHAM JACOBI, New York: I believe, as has been said, that every case has to be treated individually. You have to use your brains. I believe every one who has spoken was correct—correct in his own case—but only in his own case. We should study the babies and study the babies' mothers, and we will be better off. I am not in a position to say that your babies and the other doctors' babies will do well on the same treatment. That is impossible.

DR. ROOD TAYLOR, Rochester, Minn.: I went over the charts of Dr. Sedgwick's patients at the University of Minnesota Hospital. I was so much interested in what I found on those charts that I secured Dr. Sedgwick's permission to report what I found. All those babies happened to be fed on the four-hour interval. All the prematures did well on it. There is this to be said for using a standard interval—it helps one to gage when the tolerance of that particular baby is being overtaxed. Dr. Zahorsky mentioned the importance or non-importance of the baby's maintaining its own temperature. There were nine patients in this series who were not maintaining temperatures very well. Of these, six were not gaining. As regards the small amounts of breast milk taken at a time, I think the reason most often is not the size of the baby's stomach, but the inability of the premature baby to nurse well, whether it is due to lack of the sucking reflex or what not. The stomach of the new-born is much more active than that of the adult, and the stomach of the premature infant is much more active than that of the new-born, as the latter is more active than the stomach of the adult. Although no work has been done on the subject, I believe the stomach of the premature infant empties itself more rapidly than the stomach of the full-term infant.

We do not see in the hospital, nor have I seen outside of it, women with premature babies, who did not have breast milk. Some of these women were very sick, and some septic, but if we wait long enough there will be breast milk. Without exception, we have always had breast milk for the premature baby—that is, provided the mother lived. In regard to the use of the nasal tube, I have had no difficulty in passing the tube through the mouth, and I believe it is generally considered safer to pass through the mouth because of the danger of passing it in to the cranium. These babies gained weight very slowly, but came along all right in the end.

Health and Ethics.—The basis of ethics, then, is the health of the community. That fact we know, but we do not know it fully; we have not exhausted its riches. We have improved sanitation; we have improved the conditions of labor both as regards positive risks and the character of buildings. In these things the best and the most efficient have proved identical; so far economics has supported ethics. But economic production and efficiency are liable to be dangerous allies; we must not be led astray by a false ideal of industrial growth. Nor must we suppose that our duty ends with the physical welfare of the population. Already there are ample proofs that we shall be carried from external to internal conditions, from individual to racial questions, from health of body to health of mind. And by health of mind must be understood much more than crude questions of insanity, crime and feeble-mindedness. The human race tends to emphasize more and more its own peculiar feature; its consciousness becomes more acute and more comprehensive; it cannot, like the animal, merely eat and drink and sleep; while we teach prudence and thrift we are developing, if I may so put it, the organs of worry and anxiety. This too will have its pathology, personal and social, an evil which is far from imaginary and has its witness in much of the present unrest. All these things must be included in our idea of the "public health" and we must organize for nothing less comprehensive.—G. S. Brett, *Public Health Journal*, August, 1918.

A FURTHER CONSIDERATION OF COMPLEMENT FIXATION IN TUBERCULOSIS *

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The demonstration of antibodies in the circulating blood by complement fixation was first accomplished by Bordet and Gengou[1] and its application was made to tuberculosis by them several years before Wassermann and Bruck successfully applied the test in syphilis. If medical men should desire a less cumbersome term than the complement fixation test for tuberculosis it seems they could not do better than to term it simply "the Bordet test." The term has the advantage of brevity. It is historically accurate, and would fittingly perpetuate the name of the distinguished French investigator who first demonstrated the part played by complement in immune reactions—a discovery by which his German contemporaries were not slow to profit.

Wassermann and Bruck[2] made experiments with complement fixation in tuberculosis before they developed the test for syphilis, and subsequently Citron[3] made similar experiments. In these earlier tests, Koch's "old tuberculin" was used as antigen. For several years no marked progress was made in applying the test to the diagnosis of tuberculosis, possibly because of variation in the results in the earlier tests. Within recent years numerous articles have appeared reporting favorable results in the application of the test to extensive series of cases. The most significant feature of these reports is that, while there are differences in data and percentages due evidently to the different methods and reagents used, there is agreement that complement fixation under proper conditions gives positive results in the majority of cases of active tuberculosis. The laboratory technic employed in this test is the same in principle and in main details as in complement fixation applied to the diagnosis of syphilis. As in that test there have been many variations in the technic and in the reagents employed, and as would be expected, the results have also varied. The widest variation occurs in the preparation used as antigen, but each of the antigens used successfully has consisted of some preparation of tubercle bacilli. The reaction is one of biologic specificity depending on the presence in the patient's serum of free antibodies specific to tubercle bacilli. In this particular, the situation differs from that in syphilitic infection.

In reviewing the reports of this test, Miller[4] has classified the antigens into the following groups:

Group I. Antigens consisting of suspensions of whole or ground up tubercle bacilli.

Group II. Antigens which may be classed as tuberculins.

Group III. Antigens consisting of extracts or derivatives of tubercle bacilli.

Group IV. Preparations or extracts of normal and tuberculous organs, as lungs, lymph nodes, spleen, etc.

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* From the Department of Pathology, Indiana University School of Medicine.

* Read before the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

1. Bordet and Gengou: Compt. rend. Acad. de sc., 1903, **137**, 350. Ztschr. f. Immunitätsforsch. u. exper. Therap., 1914, **21**, 77.
2. Wassermann and Bruck: Deutsch. Med. Wchnschr., 1906, **32**, 449.
3. Citron: Berl. klin. Wchnschr., 1907, **3**, 1135.
4. Miller: Jour. Lab. and Clin. Med., 1916, **1**, 816.

Such antigens are analogous to the original antigen used by Wassermann in the complement fixation test for syphilis. Their use in tests for tuberculosis has not been attended with success sufficient to warrant serious consideration.

TESTS OF GROUP I ANTIGENS

Among the reported series of tests in which antigens of Group I were employed the following are cited as examples:

Caulfield and Beatty,[5] using "bacillen emulsion" as antigen, reported positive results in different types of tuberculosis ranging from 33 to 70 per cent. of cases. They also used Koch's old tuberculin as antigen in this same series of cases with positive results in less than 50 per cent. of the cases.

McIntosh and Fields,[6] after experimenting with various antigens, concluded that a suspension of living virulent tubercle bacilli constituted the best antigen. They reported positive results in pulmonary tuberculosis in 76.6 per cent. of the cases; in "surgical tuberculosis," 80.7 per cent., while among eighty-seven control cases only three were positive. It is of interest to note that two of these three cases were lepers, while the third was Addison's disease, which should be considered as tuberculous.

Radcliffe,[7] using a suspension of fresh tubercle bacilli as antigen, obtained 88.6 per cent. positive in early tuberculosis, 89.6 per cent. positive in moderately advanced tuberculosis, and 79 per cent. positive in far advanced cases. In 204 control cases there were no positives.

Miller and Zinsser[8] reported a remarkable series of tests, using as antigen tubercle bacilli from a large number of strains ground for an hour with dry salt and then suspended in distilled water. This antigen has the advantage of great simplicity in its preparation, and they stated that it will not deteriorate if kept for weeks at icebox temperature. They reported 284 cases of pulmonary tuberculosis with positive test in 97 per cent., 140 doubtful and suspicious cases with 22.8 per cent. positive, 113 inactive or arrested cases with 9 per cent. positive, while 144 nontuberculous controls were uniformly negative. Of forty-five Wassermann positive serums, only two were positive with their antigen. The writers stated that tuberculosis could not be positively excluded in these two cases.

Burns[9] and his colleagues, using Miller's antigen described in the foregoing, obtained equally consistent results, though their percentage was slightly lower than that of Miller and Zinsser. They compared the results of the tests with the patient's clinical condition, whether gaining or losing ground. They noted that patients who are holding their own, or gaining in physical condition, give the highest percentage of strongly positive tests, while those who are losing ground give the highest percentage of weakly positive or negative reactions. They regard the presence of complement-fixing substance in the blood as evidence of the patient's resistance and ability to form antibodies, and interpret the foregoing observations as revealing the amount of resistance the patient has available with which to combat the infection. Their view seems logical. We can readily understand how, when the system is being overwhelmed by the infection, the antibodies may be combined with the bacilli and their products as rapidly as the patient's system can elaborate them, thus leaving no free antibodies to be demonstrated by complement fixation. Conversely, if the patient is holding his own or gaining in condition, it is not surprising to find strongly positive reactions if the degree of the reaction is in any way dependent on the amount of free antibody in the circulating blood.

TESTS OF GROUP II ANTIGENS

Following are a few examples of reported series of tests using as antigen preparations of tubercle bacilli which may be classed as tuberculins, or Group II antigens.

Besredka[10] used a heated filtrate of tubercle bacilli which had been grown on a special culture medium. He found reactions uniformly positive in incipient and early tuberculosis, almost always positive in moderately advanced tuberculosis, and weakly positive or negative in far advanced cases. He laid stress on this point, since it made the test valuable in two ways: The fact that the test was uniformly strongly positive in early cases made it of especial value in the diagnosis of early and suspicious cases, while in well advanced cases in which the clinical evidence left no doubt as to the diagnosis, a weakly positive or negative test enabled him to offer a prognosis, since it served as an index to the patient's resistance. He observed, however, that the serum of syphilitic patients frequently gave a positive reaction with his antigen.

Inman,[11] using Besredka's antigen, obtained a positive reaction in ninety-five out of 100 cases of pulmonary tuberculosis. Of suspected cases in which there was no definite clinical evidence of tuberculosis, thirty out of fifty cases, or 60 per cent., were positive. Of 100 patients who were in the hospital for other conditions and in whom there was no suspicion of tuberculosis, twenty-four gave a positive test. Inman concluded that a positive test should be considered as evidence of an active tuberculous focus, while a negative reaction indicates either a healed lesion or absence of tuberculous infection.

Debains and Jupille,[12] using Besredka's antigen, obtained positive results in 90.5 per cent. of cases in the first and second stages and 81.3 per cent. in the second and third states of tuberculosis. Patients ill of other conditions than tuberculosis showed positive reactions in 17.3 per cent., while normal healthy persons were positive in 3.2 per cent. of the cases. The writers found that Wassermann positive serums gave positive results with Besredka's antigen in 24 per cent. of the cases.

Bronfenbrenner[13] used Besredka's antigen and conducted an elaborate study of various phases of the Bordet test. He also experimented with antigens prepared by the methods of Craig, Corper and Calmette. His investigations are of such significance that it is difficult adequately to review them in the limited space of this summary. Those who are interested are

5. Caulfield and Beatty: Jour. Med. Research, 1911, **24**, 122.
6. McIntosh and Fields: Lancet, London, 1914, **2**, 485.
7. Radcliffe: Lancet, London, 1914, **2**, 488.
8. Miller and Zinsser: Prac. Soc. Exper. Biol. and Med., 1916, **13**, 134. Miller, H. R.: The Clinical Value of Complement Fixation in Tuberculosis, THE JOURNAL A. M. A., Nov. 18, 1916, p. 1519.
9. Burns, N. B., Slack, F. H., Castleman, P., and Bailey, K.: Application of the Complement Fixation Test to Tuberculosis, THE JOURNAL A. M. A., May 12, 1917, p. 1386.
10. Besredka, A.: Compt. rend. Acad. de sc., 1913, **156**, 633.
11. Inman: Compt. rend. Soc. de biol., 1912, **73**, 120.
12. Debains and Jupille: Compt. rend. Soc. de biol., 1914, **76**, 199.
13. Bronfenbrenner, J.: The Complement Deviation Test with Besredka's Tuberculin and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by this Test, Arch. Int. Med., December, 1914, p. 786; Science, 1914, **39**, 808; Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 225; Proc. Soc. Exper. Biol. and Med., 1914, **11**, 92; Jour. Lab. and Clin. Med., 1917, **3**, 50.

referred to his reports for particulars. He found positive results in 72 per cent. of clinically suspicious cases. Clinically tuberculous cases in the first stage were positive in 84 per cent., in the second stage in 94 per cent., while far advanced or third stage cases gave the remarkably low proportion of 15.3 per cent. positive. He found that a high percentage of Wassermann positive serums gave a positive reaction with Besredka's antigen, while 352 nonsyphilitic, nontuberculous controls were positive in 5.6 per cent. of the cases. He found that there is a "strain specificity" in the complement-fixing substance in serums from tuberculous patients, as evidenced by the fact that a given serum will give a positive reaction with antigen prepared from certain strains of tubercle bacilli, and weakly positive or negative reactions with antigens prepared from other strains. This probably accounts for many of the variations in the results of different investigators. It also gives point to the use of an antigen prepared from many strains of bacilli, that is, a polyvalent antigen. As to the fact that a high percentage of syphilitic serums give positive reactions, it is well known that the complement binding substance in syphilitic serum is not an antibody specific to the *Spirochaeta*, but is a lipotropic substance which may bind complement in the presence of the lipoidal substance present in tubercle bacilli, thus giving rise to false positives by cross fixation. Bronfenbrenner showed that the antibody in a tuberculous patient's serum is a specific antibody and that it is not lipotropic in character. This antibody reacts with the protein fraction of the antigen after the lipoidal fraction has been removed. He further showed that the serum of patients having both tuberculosis and syphilis contains both types of antibody, either of which could be exhausted from the serum by allowing it to combine with its appropriate antigen, leaving the other antibody present in the serum in undiminished quantity. On this basis he used Besredka's antigen freed by precipitation from its lipoidal substances, in an attempt to eliminate the false positives by cross fixation in syphilitic serum. His statement of the success of this is not clear. As to the remarkably low percentage of positive tests in far advanced tuberculosis, he stated it may be because (1) the resistance of the patient is exhausted, no new antibody being formed, and (2) the antibody is taken up by combination with the bacilli and their products in the system as rapidly as formed. This view, it will be noted, is in accord with that discussed earlier in this paper. Bronfenbrenner was able to verify this view by animal experimentation. He found that guinea-pigs inoculated with tubercle bacilli frequently gave positive complement fixation test as early as from five to seven days following the inoculation, while in advanced stages, from four to six weeks after inoculation, the test became negative. Bronfenbrenner concluded that positive fixation indicates active tuberculosis and that the application of complement fixation to the diagnosis of early tuberculosis is at hand.

Craig[14] used Besredka's antigen modified by extracting with alcohol. The antigen contained many strains of tubercle bacilli including the bovine type. His results were summarized in three groups.

1. This group consisted of 209 cases of known tuberculosis. The percentages were: incipient cases, 96.7 per cent. positive; moderately advanced cases, 98.3 per cent. positive, and far advanced cases, 96.3 per cent. positive, while inactive and arrested cases showed a much lower percentage.

2. The second group consisted of other clinical conditions. Four hundred and fifty patients, ill of other conditions, including syphilis, gave a positive test in 4.4 per cent. of the cases. Three hundred and fifty cases of syphilis were positive in 5.4 per cent. of the cases. Four of these cases were later diagnosed as tuberculosis by the finding of tubercle bacilli in the sputum.

3. The third group consisted of 200 healthy young soldiers. One case, or 0.5 per cent., gave a positive test and this soldier afterward developed active clinical tuberculosis.

Craig stated that this test will not give positive results in other conditions than tuberculosis, and that his results, together with others, demonstrate that complement fixation in tuberculosis has reached the stage at which it may be used with confidence by practitioners in the diagnosis and as a criterion of cure in tuberculosis. He also stated that a positive test means the presence of an active tuberculous focus, and that as long as the test remains positive the patient cannot be considered cured. He called attention to the fact that his series shows a higher percentage of positive reactions than he himself could obtain in a like series of Wassermann tests in cases of active syphilis. He believes it is only a matter of time until this test will be as widely used as the Wassermann test.

McCaskey[15] used Craig's antigen, but his percentages were much lower. Among thirty-six cases of clinical tuberculosis, twenty-eight cases, or 77.7 per cent., were positive. Among seventy-four cases of other diseases, fifteen cases, or 20.2 per cent., were positive. Among twenty-five cases with positive Wassermann tests, eleven cases, or 44 per cent., were positive. Only two of these had clinical evidence of tuberculosis.

Petroff,[16] using three different antigens, obtained highest results with one of his own modification, which may be classed in the group of tuberculin antigens. He obtained in suspicious or doubtful cases 65 per cent. of positives; in incipient cases 81.2 per cent. were positive; in moderately advanced cases 91 per cent. were positive. Far advanced cases were 100 per cent. positive, although his number of cases in this group was too small to be conclusive. In fourteen normal controls and seven cases of arrested tuberculosis the test was uniformly negative.

TEST OF GROUP III ANTIGENS

Following are a few examples of Group III antigens consisting of extracts or derivatives of tubercle bacilli.

Calmette and Massol[17] used a special water and peptone soluble preparation of bacilli with which they obtained positive results in 124 out of 134 known tuberculous cases, or 92.5 per cent.

Corper[18] used an antigen in which tubercle bacilli were autolyzed for days at incubation temperature in salt solution. His percentage of positive results was not so high as that of others, possibly because of the fact that his antigen was prepared from a single strain of tubercle bacilli, while the prevailing opinion is that

14. Craig, C. F.: Am. Jour. Med. Sc., 1915, **150**, 781; The Complement Fixation Test in the Diagnosis of Tuberculosis, THE JOURNAL A. M. A., March 10, 1917, p. 773.

15. MacCaskey: Am. Jour. Med. Sc., 1917, **154**, 648.

16. Petroff: Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 214; Am. Rev. Tuberc., 1917, **1**, 33.

17. Calmette and Massol: Compt. rend. Soc. de biol., 1912, **73**, 120.

18. Corper, H. J., and Sweany, H. C.: Jour. Infect. Dis., 1916, **19**, 315; Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 205; Complement Fixation Tests in Tuberculosis, THE JOURNAL A. M. A., June 2, 1917, p. 1598.

a number of strains should be represented in the antigen. This point is especially emphasized by the work of Bronfenbrenner, Craig and Miller. Corper reported a considerable percentage of false positives resulting from cross fixation with syphilitic serum, and concluded that this occurred with sufficient frequency that a Wassermann test should be performed on all serums tested for tuberculosis, and in the presence of a positive Wassermann test a positive result with tuberculous antigen must be regarded as inconclusive.

Dudgeon, Meek and Wier,[19] after experimenting with a number of antigens, published their highest percentage of positive results from an alcoholic extract of tubercle bacilli. This gave 89.3 per cent. positives out of 234 cases of known tuberculosis.

If space permitted, many other equally valuable reports might be reviewed. I will close this section of the discussion by quoting one opinion from the clinical viewpoint. Dr. Meyer,[20] under whose clinical supervision this test was used diagnostically in hospitals for tuberculosis in New York, stated that the test was positive in 96 per cent. of tuberculous cases under his supervision, and that those cases in which it was negative were clinically arrested cases. He concluded as follows: "It is no exaggeration to say that the method equals in value the Wassermann test for syphilis. It is most important that complement fixation tests be made on as large a scale as possible both in sanatoriums and private life."

RESULTS OF EXPERIMENTS BY DIFFERENT WORKERS

Name	Suspicious		Early Tuberculosis		Moderately Advanced		Far Advanced		Other Conditions		Normals	
	Cases	%+	Cases	%+	Cases	%+	Cases	%+	Cases	%+	Cases	%+
Caulfield	...	....	...	33.0	...	70.0	...	63.0				
Radcliffe	...	....	...	88.6	...	89.6	...	79.0	...	....	204	0
Miller	140	22.8	32	100.0	110	98.0	83	98.0	45	4.4	144	0
Inman	50	60.0	...	....	100	95.0	...	....	100	24.0		
Debains	...	....	...	....	...	90.3	...	81.3	...	17.3	...	3.2
Bronfenbrenner	50	72.0	...	....	65	93.8	...	....	375	8.0		
Craig	...	....	30	96.7	61	98.3	54	96.4	450	4.4	200	0.5
McCaskey	8	25.0	...	....	36	77.7	...	....	74	20.2	9	11.1
Petroff	20	65.0	64	81.2	123	91.0	2	100.0	14	7.0	14	0
Corper	60	43.6	28	35.7	61	70.5	63	61.0	31	19.3		
Moon	61	60.0	24	87.5	49	85.7	83	84.3	22	26.0	100	12.0
Calmette	...	....	...	....	134	92.5*						
Dudgeon	...	....	...	....	234	89.3*						
McIntosh	...	....	...	....	...	76.7*	...	....	...	....	87	3.5

* Various stages grouped.

COMPARISON OF ANTIGENS

The foregoing reports, summarized in the accompanying tabulation, agree in the main particulars. Antigens prepared by widely different methods have given high percentage of positive tests especially in early tuberculosis, while the percentage of positives in normal individuals approaches zero. There is agreement that the test is most useful in detecting early cases, but there is difference in the evidence regarding far advanced cases, Bronfenbrenner and others finding a decrease in the percentages of positives in this group, while Miller, Craig and others find no such decrease. There is also a difference in the data regarding tests on syphilitic serum. This difference seems unexplainable when several investigators have used antigen prepared by the same method.

As to the antigens, it is difficult to draw conclusions as to their relative merits. Antigens from Groups I and II, however, seem to have produced the highest percentage of satisfactory tests. It seems to be agreed that the antigen should contain many strains of tubercle bacilli.

ANTIGEN PREPARED BY MILLER'S METHOD

My own experiments with this test began with experiments with antigen prepared by Miller's method. In the beginning, serums were used from known tuberculous cases only, and variations in technic were employed to establish a satisfactory working technic. It was soon found that specific antibody in tuberculous serum is often present in very small amount and that extreme care is necessary in the technic in testing for it. The sheep hemolytic system was used and the reagents were adjusted as follows before each test: Fresh sheep corpuscles, after repeated washing with salt solution, were centrifuged at a fixed speed for a fixed time, fifteen minutes. This was to secure a uniform packing of the corpuscles in order that quantitative measurement of them would be more accurate. A 2 per cent. suspension of these packed corpuscles was then made and the amount of fresh guinea-pig serum was determined which would cause complete hemolysis in thirty minutes at 38 C. of 0.5 c.c. of the 2 per cent. corpuscle suspension in the presence of two carefully determined units of hemolytic amboceptor. The total volume in all titrations and tests was brought to 1 c.c. by the addition of physiologic sodium chlorid solution.

In the making of the tests, two units of complement, determined as described, were incubated with 0.1 c.c. of the patient's serum and a suitable quantity of antigen for one hour, after which two units of amboceptor and 0.5 c.c. of 2 per cent. corpuscle suspension were added and again incubated for one hour. Suitable controls were made on each reagent used, and the antigen was never used in greater quantity than one third of the smallest amount that would give evidence of slight anticomplementary action. The objection is raised against using the sheep hemolytic system that it is necessary to inactivate the patient's serum by heating, and that this lessens considerably the activity of its antibodies. We found by trial that a temperature of 55 C. for five minutes is sufficient to destroy complement, so inactivation of the serums to be tested was done by heating to 55 C. for ten minutes. The shortened time of heating probably has less effect on the antibody content of the serum than the thirty minute period usually employed. It was found that 1 c.c. of the patient's serum was sufficient for the tests, as no positive tests were obtained by using a larger quantity of serum which was negative in 0.1 c.c. quantity.

The antigen employed was prepared by taking an equal quantity by weight of fresh tubercle bacilli from each of twelve different strains of the human type and

19. Dudgeon, Meek and Wier: Jour. Hyg., London, 1914, **1**, 72.
20. Meyer: Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 219.

four strains of the bovine type. This was mixed with sodium chlorid, C. P., according to Miller's formula: 20 mg. of bacilli plus 90 mg. salt, ground for an hour with a glass rod, then suspended in 10 c.c. of distilled water. The antigenic and anticomplementary quantities were determined by suitable titration. We allowed this suspension to autolyze for several days at 38 C., as suggested by Corper, with improvement in the quality of the antigen in some cases. However, unless strict asepsis was maintained in the preparation of the antigen the autolyzing process allowed contaminating organisms to develop causing undesirable qualities to appear in the antigen. I have convincing evidence that contaminated antigen causes false positives in the test. This objection also applies to antigen which is kept for a long time at icebox temperature. In attempting to produce an antigen that would keep indefinitely without deterioration, we tried the following method. Tubercle bacilli and salt in the foregoing proportion were desiccated for twenty-four hours over sulphuric acid. This greatly facilitated the grinding which resulted in an extremely fine white powder. Microscopic examination of smears made from this powder showed that most of the bacilli were fragmented. The powder would keep indefinitely in a sealed tube. The antigen was prepared by dissolving 50 mg. in 5 c.c. of distilled water and either used directly or after forty-eight hours' autolyzation at 38 C. The antigen seemed to give satisfactory results, and one specimen of powder tested after two years' storage at icebox temperature seemed as usable as when first prepared. I was so satisfied with this antigen that I used it for many months in routine tests, and the great majority of the cases here reported were tested with this antigen. However, I noticed that the percentage of known tuberculous cases which gave a negative test was running continuously higher than other workers had reported. In seeking an explanation for this, an antigen was prepared from fresh young cultures of the same strains of bacilli. These were fully virulent and were not attenuated by heating or desiccation. These two antigens were run simultaneously on a series of cases and it was found that the number of positives among known tuberculous cases was distinctly higher with the fresh antigen and that the reactions were more distinct. I have abandoned the dried antigen in favor of that prepared fresh from young virulent cultures. This antigen in a limited series of the cases has given 96 per cent. positive reactions. The results from this antigen will be reported later. The experience with antigen prepared from desiccated bacilli is here reported, but its use is not recommended, since it lacks in delicate antigenic properties.

RESULTS IN ONE HUNDRED AND FIFTY-SIX TUBERCULOUS CASES

There were 156 cases diagnosed clinically as tuberculosis. Of these, 133 cases, or 85.2 per cent., gave a positive test. These were subdivided as follows: Twenty-four cases of incipient tuberculosis were positive in twenty-one cases, or 87.5 per cent.; forty-nine cases classed as moderately advanced were positive in forty-two cases, or 85.7 per cent.; eighty-three cases classed as far advanced were positive in seventy cases, or 84.3 per cent. It is noticed that there is a more frequent occurrence of negative tests in the far advanced cases. This point has been observed by others as discussed above. However, this feature does not seem to have direct value as indicating the degree of the patient's resistance in our experience, as in four cases which terminated fatally, the serum gave a strongly positive test within two weeks prior to death.

There were sixty-one cases in which there was clinical suspicion of tuberculosis, or at least the clinician felt it necessary to consider tuberculosis before making a diagnosis. These cases had no definite evidence of tuberculosis and hence belonged to the class in which this test will probably be of greatest service as an aid to diagnosis. Twenty-four of the sixty-one cases, or 40 per cent., gave a positive test.

There were twenty-three cases which presented other clinical conditions in which tuberculosis was not suspected; six of these, or 26 per cent.. gave positive test.

The Bordet test was applied to 100 serums which were strongly positive by the Wassermann test. Of these, thirty-eight reacted positively. Histories of all these cases were not obtainable, but in view of the recognized frequency of occurrence of tuberculosis in syphilitics, it is probable that many of them were tuberculous. However, it is not fair to assume that all of them were, and I agree with the opinion of others, that a Wassermann test should be made on each serum tested for tuberculosis, and that in the presence of a positive Wassermann test, a positive result with tuberculous antigen should be regarded as inconclusive. This practice has been followed in the series here reported. It has resulted in establishing a positive diagnosis of syphilis in several cases in which tuberculosis, not syphilis, was suspected. An attempt was made to eliminate the positives occurring with Wassermann positive serum, by extracting the tubercle bacilli with absolute alcohol and ether and preparing the antigen from the insoluble residue. Such antigen showed no difference from that containing the whole tubercle bacilli either in tests on known tuberculous serum or on Wassermann positive serum.

There were 100 young healthy adults, for the most part medical students, who submitted themselves as controls. Of these, there were twelve who have positive reactions, on repeated tests. Two of these, on submitting to a careful physical examination without the examiner's knowing the result of the test, were found to have physical signs sufficient to class them as suspicious. Those who have had a wide experience concerning necropsy examinations will substantiate the statement that a high percentage—60 per cent. according to some reports—of adults dying from other causes show evidence of previous tuberculous infection. The opinion is that these small healed lesions were active in early or young adult life. Often the lesions are so small as to escape even the most searching physical examination. Personally, I am of the opinion that it would be difficult to find a group of 100 young adults chosen at random, which would not contain a few members with slight, active tuberculous lesions. It is probable that some of the positives in this group were tuberculous, and that the remainder were false positives due to an imperfect antigen.

CONCLUSIONS

Complement fixation in tuberculosis should be regarded as an established technic, well past the experimental stage. Its value will be greatest as an aid in the early diagnosis of tuberculosis. It should be regarded in the same manner as the Wassermann

test, not as a test on which alone the diagnosis may rest, but as evidence which, considered together with other evidence, will be of real value in establishing the diagnosis. Its value will be great or small exactly in proportion to the use made of it by practitioners in an attempt to detect early incipient tuberculosis, and to aid in establishing the diagnosis of doubtful or suspicious cases.

I have found that a freshly prepared antigen containing living virulent bacilli is superior to one containing dried organisms, although the latter will keep indefinitely.

Until some antigen is devised which will not give false positives by fixation with the lipotropic antibodies of syphilitic serum it will be necessary to exclude the presence of the latter by the Wassermann test before basing conclusions on the results. Craig and Miller seem to have prepared such an antigen. I was unable to verify this statement with antigen prepared by Miller's method.

ABSTRACT OF DISCUSSION

Dr. Augustus B. Wadsworth, Albany, N. Y.: There are so many reactions in the complement fixation of the tubercle bacillus that it is difficult to tell just which of the reactions are significant in the diagnosis of the disease. We ought to proceed cautiously and conservatively in accepting all of the results. There has been considerable difference of opinion and considerable difference in the statistics of the results that some observers have had in the course of their investigations. At the time of the early work with the Wassermann test in the diagnosis of syphilis it was not possible, for the purpose of comparison, to use accurately controlled experimental investigations of the reaction of the test based on infection in animals. The Wassermann test was practically established before this became possible, but it is now possible to study the results of these tests of complement fixation in tuberculosis infection by experimentation on animals. The previous work has failed to take into account the value possibly of comparative study in animals. The immunization of animals, not only with the dead tubercle bacilli or cultures, but the study and development of immunity with specific antigens, can be used to determine just what reactions are obtained.

In my laboratory we have taken up the work quite extensively, and, while we have made little progress with it, we have found that it is practical to carry on parallel experiments with animals. I do not know but what we may meet with some insurmountable obstacles, but it looks to me now as though it would be possible to prepare the antigens. I should like to ask Dr. Moon if he has had any experience in his work with animal tests of the antigens which he has used, or tested the reactions that may develop in the serum of inoculated or tuberculosis animals.

Dr. J. J. Seelman, Milwaukee: In the complement fixation test for tuberculosis, just as in the Wassermann test for syphilis, we must consider the findings in connection with the clinical aspects of the case. It would be unjustifiable to make a diagnosis of tuberculosis purely on the findings of a complement fixation test, because the symptoms for which a patient presents himself may have little or no relation to his tuberculous process. We must consider the test merely as an additional symptom which may or may not be of value in arriving at a diagnosis in a given case.

I recently had occasion to review the literature on tuberculosis of the past few years and found only one clinician who, in the discussion of the diagnosis of tuberculosis, mentioned the complement fixation test. This, in view of the fact that for a period of at least two years the test has been on a dependable basis, seemed to me remarkable. What we need now is propaganda to impress on the clinician the value of this test and to teach him how to use it effectively.

Dr. H. J. Corper, Chicago: We have lived through periods when certain observers believed the complement fixation test in tuberculosis was equal to the Wassermann test. We have come now to a period when we seem to be agreeing better than before. In the beginning reports from Craig and Miller and Bronfenbrenner intimated that we did not need clinicians' findings. Petroff, who also at the beginning felt he could make an absolute diagnosis, recently admitted he erred a little on the side of positive results, probably because of his enthusiasm. Miss Lange, with Dr. Krause, obtained results which agreed well with those of Elizabeth Frazer, who was the first to compare the results obtained with a number of different bacillary antigens. Dr. Paul Lewis of Phipps Institute has tried any number of ways and antigens in an attempt to increase the percentage.

The sum total of the findings and conclusions of these observers can be stated briefly: That the complement fixation test in tuberculosis, varying slightly with different observers, does not give more than about 50 to 70 per cent. positive reactions, regardless of what antigen is used. In these experiments there were reported observations with Craig's, Miller's and Petroff's (multiple) antigens. Today tuberculosis workers feel that the complement fixation test in tuberculosis is not an absolute test; that its only value lies, as in most laboratory tests, in giving the clinician aid. The clinician must make a diagnosis with all the data at hand, both clinical and laboratory. Another striking point brought out revealed how cautious we must be in using this test. It is a fact that 10 per cent. of negative clinical cases of tuberculosis (normal individuals) will give positive complement fixation tests for tuberculosis. Therefore, we can only regard this test as a danger sign, and use it guardedly, indicating that the doctor must go further in his observations to see whether he can find anything else to corroborate the serologic diagnosis. It is not as reliable as the Wassermann reaction.

Dr. R. B. H. Gradwohl, St. Louis: My personal experience with this test has been fairly extensive. I have taken the precaution of working with a number of different antigens made by different men and preferably furnished by the men who recommend it. My experience with the test in advanced cases (and it has been the advanced cases with which I have worked particularly—I have not had the opportunity to get hold of many beginning cases) has given, averaging about five antigens, a very low percentage of positives—I think fifty or lower, at least in advanced tuberculosis.

In the last six months I have been working with all of Petroff's antigens, and there is quite a disagreement at times between the results of his antigens. My best results have been with Petroff's glycerin extract, which is quite stable and reliable. Up to the time Petroff was good enough to furnish me with this last antigen, Miller's antigen had been the best. I emphatically oppose the statements of those clinical and laboratory men who have stated that this test can be used as a criterion of arrest of a tuberculous process. It is a valuable test for diagnostic purposes in incipient cases; it has a definite value when negative, but a negative result can neither exclude tuberculosis nor can it prove an "arrest" of the process. The test has a great value within these limitations.

Dr. Carl C. Warden, Ann Arbor, Mich.: I want to ask Dr. Moon two questions. He said that the readings were taken after one-half hour's time. Is that right?

Did hemolysis take place on standing with those reactions which were at that time positive? Did he use as antigen any suspensions of organisms other than the tubercle bacillus?

I ask these questions for this reason: I worked with these tuberculous antigens for a year—antigens prepared by the methods described and many others, including the fat antigens. When we got through we came to the conclusion that while it was possible to produce antibodies in the blood of animals by experimental inoculations there was nothing tc show that antibody is present in the human individual at any time during the course of the disease.

The pathology of the disease tends to support this question because the response of the human body to the invasion of the tubercle bacilli is a process wholly different from that of other invasions. We have obtained just as good reactions with suspensions of anthrax bacilli, with an organism obtained

from scarlet fever patients, and particularly with lepra bacilli, as we did from any of the tubercle bacilli we used.

DR. V. H. MOON, Indianapolis: I have had no opportunity to conduct experiments with animals. The experience I cited of Dr. Bronfenbrenner seemed to point to the fact that the animals form antibodies against the tubercle bacilli very early and that late in the course of the disease, as it approaches a fatal termination of the infection, the antibodies disappear.

As to details for the preparation of the antigen, I followed quite closely Dr. Miller's published account of the preparation of it. I used fresh virulent young organisms from twelve different strains of human bacilli and four strains of the bovine type. These were desiccated with salt and then pulverized by grinding. This antigen had fine keeping qualities and I was falsely led to think that it was a very desirable antigen. But it is not so sensitive as that prepared from the freshly grown bacilli without desiccation.

As to the consideration of the amount of evidence or the amount of significance which should be placed on the positive test: We should not regard this as definite evidence that the patient is suffering markedly from tuberculosis any more than we should consider a positive Wassermann test as indicative that the patient is suffering from syphilis. The syphilitic is not immune to the other ills to which the flesh is heir. A man may have other ailments as readily as if he did not have syphilis. If a doctor should ask you to make a Wassermann test in a case and should base his entire diagnosis on your positive Wassermann he might think a patient who was about to die of typhoid was purely a syphilitic. The situation is entirely similar regarding complement fixation in tuberculosis. I agree with the statement that we cannot place absolute reliance on it. But I am convinced that this test will give a much higher percentage of positive results than the figure mentioned by Dr. Corper. A certain percentage of apparently normal persons may give a positive test. As evidence of this I cited the twelve out of 100 medical students who reacted positively. Two of them did show evidence which might be regarded as suspicious of tuberculosis, but it would not be fair to send the remaining ten to the West or the South on a diagnosis of tuberculosis on the strength of this test. This test is merely evidence which the clinician shall weigh in correct proportion with other evidence in making his diagnosis. If he is suspicious of a case as being one of early tuberculosis, if he secures a positive complement fixation test he will have additional suspicion that his case may be one of tuberculosis, but he will not have absolute evidence. We may regard it as absolute if we find the tubercle bacilli in the sputum. That, of course, is a higher grade of evidence than any evidence which may be obtained from serum tests.

I have not tried as antigens bacteria of any other varieties, such as the colon bacillus or the *Bacillus subtilis*. I tested only for antibodies against the tuberculosis antigen.

As to incubation period, I was misunderstood. In making the test, an hour incubation period before adding amboceptor and corpuscles, and an hour incubation after adding the amboceptor and corpuscles was the method followed regularly.

I may answer Dr. Warden's question by saying that occasionally tests were slightly positive in thirty minutes which later cleared up. Usually the result was the same after thirty minutes' reading as it would be at the end of the hour. My readings were all taken at the end of an hour.

Nutritive Value of Dried Milk.—The growth curves of children fed exclusively on dried milk from birth closely resemble the average growth curve of breast-fed children, although at somewhat lower levels by reason of the more delicate condition of these children. The conclusion is reached "that cow's milk, during the process of desiccation, loses none of the characters which are necessary for the support of normal growth in infants." Teething and walking begin at normal ages, and there is no greater liability of rickets and scurvy. The experiments on rats led to the conclusion that dried milk as a sole food maintains the animal in good health and permits normal growth for periods which long outlast those corresponding with infancy and early childhood in the human subject.—Food Report 24, Local Government Board.

Military Medicine and Surgery

ANTHRAX AT CAMP HANCOCK, GA.

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The possibility of the appearance of the skin manifestations of anthrax from time to time is admitted, and the necessity of having a clear idea of the classic picture of an anthrax pustule is therefore apparent.

In reporting three cases of anthrax occurring in this camp within four weeks, we hope to impress on the reader the distinguishing points in diagnosis, and the necessity for early treatment.

Anthrax is definable as a specific and highly contagious disease due to *Bacillus anthracis*.

Fortunately the organism never enters the unbroken skin, but gains entrance at the site of an abrasion. Any commercial animal product—hide, hair or wool—and the articles manufactured therefrom afford the source of contagion.

SYMPTOMS

The usual appearance of the skin manifestations of anthrax is as follows:

Following a period of incubation varying from one to five days, a small red papule appears at the site of abrasion, with symptoms of itching and burning, though these are sometimes absent.

After the lapse of from twelve to twenty-four hours, a small vesicle appears on the papule, surrounded by a red areola and edema. The vesicle ruptures in from two to four hours, its site being marked by a small ulcer exuding a small amount of clear serum.

After from twelve to twenty-four hours, the crater of the ulcer will harbor a carbon-like (coal-like) eschar. Numerous vesicles appear on the edge of the crater.

The classic picture, therefore, would show a black eschar lying in a crater surrounded by vesicles—a red areola and an edema usually out of proportion to the size of the lesion. Some of these symptoms may be wanting, but the black eschar is always present and is diagnostic. The lymphatic glands draining this area are usually greatly swollen.

The subjective symptoms are malaise, fever, headache, prostration, and slight itching or burning at the site of the lesion.

The objective symptoms are early weak, rapid and intermittent pulse; a rise in temperature varying from normal to 105; occasional vomiting and diarrhea; occasional signs of fluid in the abdomen or pleural cavity; early cyanosis, and delirium usually absent or late. Death may, however, suddenly intervene, the symptoms being disproportionate to the gravity of the case.

The "edema maligna" of anthrax occurring about the eyes, lips or neck is characterized by diffuse, painless, semitransparent edema, with vesicles appearing on the surface, some often containing blood. These, however, rapidly disintegrate, and the carbon-like eschar appears. Constitutional symptoms are early and correspondingly fatal.

DIAGNOSIS

The diagnostic points are:

1. Carbon-like eschar from 1 to 3 cm. in diameter, reposing in a crater bordered by numerous vesicles surrounded by a red areola and considerable edema.

2. Absence of suppuration and pain.

3. Systemic symptoms—malaise, headache, fever, prostration.

4. The finding of the *Bacillus anthracis* in the vesicles or edema about the lesion, or the appearance of the organism in films taken from beneath the eschar.

5. The occurrence of a lesion on parts of the body habitually uncovered. These will serve to differentiate anthrax from furuncle, folliclis, carbuncle, chancre, granuloma pyogenicum, phenol or cautery burns and poison wounds.

6. The absence of pain, a diffuse, semitransparent edema covered with vesicles filled with blood or the ulcer harboring the carbon-like eschar, and the finding of *Bacillus anthracis* will differentiate the edema maligna of anthrax from phlegmonous erysipelas, cellulitis or angioneurotic edema.

TREATMENT

As soon as the diagnosis is clinically established and films and cultures have been made, the following procedure should be immediately instituted:

1. The tissues about the lesion should be infiltrated with from 30 to 50 c.c. of antianthrax serum, a large needle and Lüer syringe being used.

2. The lesion should be dissected, a nose cautery being used, and an effort made to remain at least one-half inch from its border.

3. Seventy-five c.c. of antianthrax serum with 50 c.c. of physiologic sodium chlorid solution, should be given intravenously.

4. Seventy-five c.c. of antianthrax serum should be given intramuscularly.

5. The wound should be dressed once in twenty-four hours with a solution of phenol (carbolic acid), 3 parts; camphor, 7 parts; glycerin, 40 parts, and alcohol, 180 parts.

6. The serum therapy should be repeated every eight hours, according as circumstances may require.

REPORT OF CASES

Case 1.—A soldier, admitted, June 7, 1918, noticed a small pimple on the left cheek, June 4. He used a new shaving brush, June 2, and his razor caused an abrasion. June 6, the lesion had increased in size and was described by the patient as a sore with a black center.

June 7, on admission, he complained of headache, fever, malaise and a feeling of dizziness and prostration, which symptoms were the reason for his admission. The temperature at 2 p. m. was 101.2, the pulse, 98. At 4 p. m. the temperature was 104.6 and the pulse, 120. The pulse was fair in volume but intermittent. At 7 p. m. after the laboratory examination had been made the patient was given ether anesthesia, the ulcer was cauterized, and the whole area was excised, the excision going wide of the border of the lesion. The wound was not closed and was dressed with neutral solution of chlorinated soda. No antianthrax serum was obtainable, so 60 c.c. of horse serum with a like amount of physiologic sodium chlorid solution was given intravenously.

June 8, at 8 a. m., an abdominal examination revealed free fluid, and an examination of the chest revealed beginning edema of both lungs. At 4 p. m. the fluid in the abdomen had greatly increased. The temperature was 97.6, the pulse, 160, weak and intermittent, and unaffected by digitalin. At 8 p. m. the patient developed a low type of delirium.

June 9, at 2:15 a. m., the patient died.

Case 2.—A soldier, admitted, June 19, 1918, presented the subjective symptoms of frontal headache, malaise, fever, dizziness and extreme prostration. The temperature was 99.8, and the pulse, 96. No anthrax lesion was noted by the patient or the attendant at the time of admission.

From June 20 to June 22, the symptoms were the same.

June 22, a blister on the side of the neck was noticed. The temperature was 101.4 and the pulse, 88.

June 23, the patient felt a pain in the neck and noticed glandular enlargement in addition to the appearance of an ulcer at the site of the blister of the previous day. A clinical diagnosis of anthrax was made and confirmed by laboratory findings. The temperature was 101.8 and the pulse, 84. At noon, the area about the lesion was infiltrated with 50 c.c. of antianthrax serum, a large needle and a Lüer syringe being used; under ethyl chlorid general anesthesia the lesion was dissected with a nose cautery and the base seared with the cautery, with no bleeding. The wound was dressed with a solution of camphor, phenol and alcohol. Fifty c.c. of antianthrax serum, together with a like amount of physiologic sodium chlorid solution, were given intravenously. At 4 p. m. the axillary temperature was 103.2 and the pulse, 96. At 8 p. m. the temperature was 101 and the pulse, 104.

June 23, at 8 p. m., 50 c.c. of antianthrax serum with 50 c.c. of physiologic sodium chlorid solution were given intravenously.

June 24, at 11 a. m., the temperature was 100.4 and the pulse, 96. Fifty c.c. of antianthrax serum were given intravenously into the gluteal region. At 5 p. m. the temperature was 100 and the pulse, 86. Fifty c.c. of antianthrax serum were given intramuscularly.

June 25, at 9 a. m., the temperature was 98.4, the pulse, 80 and the respirations, 24. Fifty c.c. of antianthrax serum were given intramuscularly.

June 26, no further treatment was given except local treatment. At 9 a. m. the temperature was 98, the pulse, 62; at 9 p. m., 98 and 60.

June 27, at 9 a. m. the temperature was 97.4, the pulse, 50; at 9 p. m., 98 and 52.

June 28, at 9 a. m. the temperature was 97, the pulse, 58; at 9 p. m., 97.4 and 52.

June 29, at 9 a. m. the temperature was 97.4, the pulse, 50; at 9 p. m., 97 and 60.

June 30, at 9 a. m. the temperature was 98.4, the pulse, 60; at 9 p. m., 98 and 60.

July 1, at 9 a. m. the temperature was 98, the pulse, 60; at 9 p. m., 98 and 60.

July 7, the wound was healed in the normal manner. This patient was not at any time delirious. He was nauseated only the first day, and showed no reaction from serum therapy.

His recovery is believed due to the early use of antianthrax serum and the manner in which the lesion was removed.

Case 3.—A soldier, admitted, July 3, 1918, had accidentally cut his right cheek while shaving on the morning of June 30. He had been using a new brush.

July 1, the patient noticed a papule at the site of the cut.

July 2, as stated by the patient, the papule had appreciably increased in size, associated with swelling in the neck.

July 3, the lesion showed a black area in its center. The patient stated that he felt tired, and that he went on sick call because he was worried concerning the rapidly growing ulcer on his cheek. On admission, at 10:20 a. m., the temperature was 100, the pulse, 100. The patient complained of headache, dizziness and nausea. The lesion on the right cheek was one-half inch in diameter and was surrounded by numerous vesicles; in the center was a black eschar. The tissues of the right side of the neck showed considerable tumefaction. The patient did not complain of any pain at the site of the lesion. At 1:15 p. m. the tissues surrounding the lesion were infiltrated with antianthrax serum, and the lesion dissected with a nose cautery. The base was cauterized. This was done under ethyl chlorid general anesthesia. Seventy-five c.c. of antianthrax serum, with 50 c.c. of physiologic sodium chlorid solution were given intravenously. Seventy-five c.c. of antianthrax serum were given intramuscularly into the gluteal region. The wound was dressed with phenol and camphor

solution. The temperature was 101.2 and the pulse, 84, at 10 p. m.

July 4, 75 c.c. of antianthrax serum and 50 c.c. of physiologic sodium chlorid solution were given intravenously. Fifty c.c. of antianthrax serum were given intramuscularly. At 9 a. m. the temperature was 97.6, the pulse, 80; at 9 p. m., 100 and 84.

July 5, 50 c.c. of antianthrax serum were given intramuscularly. At 9 a. m. the temperature was 99, the pulse, 82; at 9 p. m., 99 and 74.

July 6, at 9 a. m. the temperature was 97, the pulse, 68; at 9 p. m., 97.6 and 60.

July 7, at 9 a. m. the temperature was 96.6, the pulse, 60; at 9 p. m., 97 and 68..

July 10, the wound was granulating in the normal manner. The pulse still continued to be around 68, but was of good volume, and the patient had no subjective symptoms of any kind.

BACTERIOLOGIC DIAGNOSIS

In view of the ruling of the Surgeon-General of the Army, that diseases of known bacterial origin cannot be diagnosed as such by the clinician until his provisional diagnosis has been confirmed bacteriologically, Case 1 is of interest because of the difficulty encountered in making a positive bacteriologic diagnosis of infection by the anthrax bacillus.

A few hours after the patient had been admitted to the hospital, several films were made from the serum exuding from the vesicles about the circumference of the lesion, but no organisms resembling *B. anthracis* were seen. It was only after the gangrenous central area had been raised by means of forceps and smears made from the underlying tissue that an organism similar to the anthrax bacillus was found. This bacillus was gram-positive and occurred in chains of two or three, the average size being 1 by 7 microns, a few measuring 1.5 by 2.5 microns. The ends of the bacilli were square, and a few appeared to show slight cupping. One or two centrally placed spores were seen. A number of gram-negative, coccoid bacilli and a few pus cells were also seen. Cultures were made on plain and blood agar at the same time that the direct films were prepared. A blood culture was made at this time.

Twelve hours later the cultures made from the lesion were examined, and a large number of gram-negative coccoid bacilli with central nonstaining areas were seen. A large number of the gram-positive bacilli were also present. The majority of the latter were in long chains, the average size being 1 by 4 microns. Very few of these organisms had square ends; the majority were rounded. No spores were seen at this time, but twelve hours later they appeared in large number. An emulsion of the mixed culture was plated for the purpose of obtaining the various organisms in pure culture. No growth was obtained in the blood culture after seventy-two hours' incubation.

Morphologically and culturally, the gram-positive bacillus corresponded to *B. anthracis*, the absence of motility in the hanging drop, the inverted fir-tree appearance of the growth in stab agar cultures, the Medusa head appearance of the colony on agar, etc., being typical. Suspensions of the bacteria in physiologic sodium chlorid solution were boiled for varying periods of time, and the emulsion then plated. It was found that two minutes' boiling was required to kill all organisms in a twenty-four hour culture containing spores.

In determining the degree of pathogenicity of the bacillus, a total of seven animals were used. The results are given in the accompanying table.

In view of the pathogenicity of the organism and its marked similarity to the anthrax bacillus, the clinical diagnosis of infection by *B. anthracis* was confirmed.

No necropsy was performed, but several splenic punctures were made several hours after death with negative results, no anthrax bacilli being found in films or culture. The undertaker reported that on opening the peritoneal cavity a fairly large amount of clear, light brown fluid was found. A firm, dark colored tumor, 4 by 8 cm. in size was found attached to the mesentery of the small intestine. Microscopic examination of sections demonstrated it to be a partially organized blood clot.

PATHOGENICITY OF BACILLUS

Animal	Inoculating Material and Site of Injection	Result
White Rat 1..	Serum from lesion; intraperitoneal injection	No visible effects; animal still living
Guinea-Pig 1..	1.5 c.c. of 12 hour mixed culture* from lesion; intraperitoneal injection	Death after 80 hours; hemorrhagic condition of muscles of thorax and abdomen, viscera somewhat congested; cultures from abdominal muscles and all organs showed motile, gram-negative, coccoid bacilli with central nonstaining area; no anthrax bacilli were present in films from organs or culture; organism responsible for death was a bacillus of the hemorrhagic septicemia group
White Rat 2..	1 c.c. of 24 hour mixed culture* from lesion, second on agar; injected in tail	No visible effects; animal still living
Rabbit 1	1.5 c.c. of 24 hour mixed culture* from lesion; intraperitoneal injection (8 hours prior to injection, 10 c.c. of blood were removed by cardiac puncture)	Death in 2 hours; necropsy 8 hours after death; cultures from all organs and a variety of bacteria were present; bacilli of the hemorrhagic septicemia group predominated; no anthrax bacilli were found in culture; primary cause of death was shock
Rabbit 2	1 c.c. of 24 hour mixed culture,* third on agar; subcutaneous and intraperitoneal injection	Death in 20 hours; peritonitis found at necropsy; bacilli of the hemorrhagic septicemia group were present in pure culture from all organs; death due to hemorrhagic septicemia
Guinea-Pig 2..	1 colony of gram-positive bacilli; subcutaneous injection in abdominal wall	Killed 25 hours after injection; pig was apparently in good health at time of death; muscles of thorax and abdomen were markedly edematous; no other macroscopic changes; pure culture of the same organism as injected obtained from all organs
Guinea-Pig 3..	Same as for Pig 2	48 hours after injection, animal semed to be in normal state of health; death 70 hours after inoculation; necropsy revealed a hemorrhagic and edematous condition of the abdominal muscles about the site of injection; peritoneal cavity contained blood-tinged fluid; pure cultures of the same organism as injected obtained from all organs

* Emulsion of growth on agar slant.

Cultures made of the bristles of the shaving brushes used by the patients were negative for anthrax bacilli.

In the Cases 2 and 3, no difficulty was encountered in making a bacteriologic diagnosis of anthrax infection, for the organisms isolated from the lesions were characteristic and were pathogenic for guinea-pigs, death occurring in twenty-three and twenty-nine hours, respectively.

CONCLUSION

The difficulty in confirming the clinical diagnosis of anthrax infection in the first case was due to two factors, (*a*) the use of animals (white rats) possessing a high degree of immunity to infection by *B.*

anthracis and (*b*) the presence in cultures from the facial lesion, which were used for inoculating purposes, of a bacillus of the hemorrhagic septicemia group, a rare coexisting organism possessing a marked degree of virulence for certain laboratory animals.

It is possible that the bacilli of the hemorrhagic septicemia group exert an antagonistic influence on the growth of *B. anthracis*, and possibly they accounted for the absence of anthrax bacilli in the animals that died of hemorrhagic septicemia. It was noted that the longer the two were grown together, the greater the disproportion between the two, the anthrax bacilli diminishing in number.

Therapeutics

EPIDEMIC INFLUENZA

Under various names, epidemics corresponding to epidemic influenza have occurred at irregular intervals since accurate descriptions have been made of disease. It is likely that at still earlier times this disease was combined and confused with other epidemic disorders, and so did not stand out as an entity until a relatively modern period. In early English literature this disease is spoken of under a variety of terms. Creighton[1] recognizes it under the name "ague," used by the British seventeenth century authors. In 1658, Cromwell died from this disease, when Morton says the country was "one vast hospital." The Italian term "influenza" first came to England in association with the epidemic of 1743, and it has been employed in connection with the great epidemics of 1833, 1847 and 1889-1890.

About 1712 the French term "la grippe" came into use and has been periodically revived ever since. The great pandemics usually originated in the Far East, and gradually extended westward. The rate of human travel and the degree of intercourse between various parts of the world determined the rapidity of the extension. Besides the great pandemics, scarcely a year has passed without local outbreaks which have been classed under the term "influenza." Whether these are identical with the more widespread epidemics it is impossible to say.

The severity of the disease has varied greatly; some epidemics are very mild; others have been severe. Influenza has embraced America in several pandemics. In his remarkable work on epidemic diseases, published in Hartford in 1799, Noah Webster locates the first American epidemic of which he could find an account in 1647. It passed through the whole country and extended to the West Indies. There were between 5,000 and 6,000 deaths in Barbados and St. Kitts. In 1655 a second severe epidemic occurred in America. Benjamin Rush described an epidemic in 1789 in Philadelphia, which was brought there by members of the first Congress, which had assembled in New York. Daniel Drake records a widespread epidemic in the West in 1807.

The history of epidemics of influenza does not differ so much from that of other diseases spread by human intercourse that are usually called contagious. A widespread epidemic follows the introduction of a specially virulent virus, and there follows a general immunity among those of the population who have been infected. As the epidemic dies out, the infection decreases in virulence and only sporadic cases occur. From such cases and probably chronic carriers, local outbreaks occur; but the general immunity prevents any general epidemic. After a period of years a new susceptible population has replaced the immune one, and with the introduction of a fresh virulent virus a general epidemic is again brought about. This would account for the great susceptibility of young persons, and as it is twenty-eight years since the last great epidemic, we should not expect many individuals above 30 years of age to be now affected.

1. Creighton: History of Epidemics in Britain, 1894.

CAUSATION

The causative agent of epidemic influenza has not been certainly recognized. The attachment of the name "influenza bacillus" to a small bacillus described by Pfeiffer in 1892 has been followed by its frequent reception as the actual specific agent. There is, however, much uncertainty as to its etiologic rôle. It is to be hoped that the study of the present epidemic may lead to some certain knowledge regarding the essential cause of the disease. This should enable us to determine whether the endemic cases and those of limited mild epidemics are really identical with the ones observed in the great periodic outbreaks.

COURSE OF THE DISEASE

The cases in the present epidemic begin usually quite suddenly with pain in the head, back, eyes, limbs and joints. With the pains there is great prostration, chilliness and a fever of from 101 to 104 F. The pulse does not become very rapid, and the patient often is drowsy. Vomiting may occur. Sometimes there may be diarrhea, but usually there is constipation. After the disease has become established the mucous membranes of the nose and throat become reddened, and there is sneezing and redness of the conjunctiva. Involvement of the larynx causing hoarseness, and of the bronchi causing cough are common. There is an associated leukopenia or a normal leukocyte count. A leukocytosis points to some complication. The fever gradually falls to normal after a few days and more or less prostration is present during convalescence. A transient albuminuria is frequent. Many of the cases have hemorrhages of the mucous membranes of the nose some of the urethra or bowel.

SECONDARY PNEUMONIA

Not infrequently a lobular pneumonia develops after a few days, and this is responsible for most of the fatalities. The pneumonia differs from the usual picture of pneumonia, in that the temperature may be very slight, and the pulse rate may give little indication of the gravity of the condition. These cases, instead of subsiding, may come down to practically normal temperature for twelve hours; then there may be a sharp rise in temperature, not followed by a chill, backache, boneache, headache or nausea.

About this time there may also be expectoration containing bright red blood. As a rule, twelve or twenty-four hours after the second rise of temperature on physical examination in the lower lung, in a preponderance of cases on the left side, as seen at

Great Lakes, small areas about the size of a silver dollar of typical pneumonic consolidation are found by auscultation. These areas may become marked so that by the second day of the second rise scattered through the lung, probably both lungs, ten or fifteen of these small areas may have appeared. In the epidemic at Great Lakes, if the patient did well these would gradually disappear. They did not resolve as a pneumonia would resolve. The clearing up of the lung after this in the recovered patients was remarkable as to its rapidity. Other cases went on to a typical lobar, massive consolidation, as far as the physical signs were concerned, with dulness, increase in fremitus, typical tubular voice and breathing and all the signs, except that there was not a very marked increase in the pulse rate, and the respirations were not up to this time markedly increased. Cases with almost complete consolidation of the lung, as to the lower lobes, with a temperature of 105, would have a pulse around 100, with respirations 24 or 26. There may be rapidly developing toxemia and vasomotor depression, with death of the patient resulting in many cases.

INCUBATION PERIOD

The incubation period in these influenzas is probably very short, but it is difficult to obtain accurate figures on this point. The disease is probably spread entirely by contact infection, the virus of the disease being disseminated for short distances through droplets driven into the air in coughing and sneezing. Circumstances which favor this means of spread, such as crowding in cars, favor the spread of the disease.

TREATMENT

The treatment of the disease is largely symptomatic. Acetylsalicylic acid or similar remedies may be required to relieve the pain. The acetylsalicylic acid may be given in a dosage of 1 gm. (15 grains) every three hours, as advised by Hewlett, or a smaller dose combined with 0.1 gm. (2 grains) of acetphenetidin, until symptomatic relief is secured. Warm baths may give relief, although in numerous cases seen at the Cook County Hospital hydrotherapeutic methods failed and were discarded. The mouth should be kept clean, and elimination stimulated by the free ingestion of water and hot drinks. The patient should be kept in bed in a well ventilated room until the fever has disappeared. Chilling should be avoided. The latter precautions will do much in avoiding the occurrence of complications.

When pneumonia develops, as indicated by moist râles in the base of the lungs, with or without dulness on percussion, the patient demands particular care. Every effort must be made to provide for an adequate intake of fluids, and for nourishment, which must be given in fluid form to a large extent. Warm packs are often useful, combined with the application of cold to the head. With any indication of failing heart, stimulants are indicated.

In the cases of secondary pneumonia, many of which result fatally, the chief conditions to be combated are the severe toxemia and the vasomotor depression. The toxemia may be combated by the usual methods, getting fluids into the body by mouth or proctoclysis or even by hypodermoclysis. Small doses of epinephrin may be given at the same time. The removal of the toxemia may be aided by securing elimination, giving large doses of salts, such as magnesium citrate, or by the giving of calomel. In severe cases, venesection may prove extremely valuable. If a marked cyanosis occurs as is frequently the case, this may be combated by the use of oxygen by inhalation, perhaps according to the method devised by Meltzer,[1] or even as has been suggested by Dr. F. Tice, by injection of oxygen under the skin. The prostration is to be combated by the use of the usual stimulants, such as caffein and sodium benzoate, digitalis, strophanthus or camphorated oil, usually hypodermically. The final stages in this pneumonia are frequently a massive exudation into the lungs and bronchi. At the Great Lakes Naval Training Station efforts have been made to combat this by the use of morphin and large doses of atropin, in some cases as much as 0.0025 gm. or $\frac{1}{25}$ grain, being used.

Specific measures are not available in the treatment of influenza. With certain identification of the causal agent, we may hope for some specific protective measures, and perhaps for some specific therapeutic serum.

In the absence of a specific virus to be used in immunizing animals, there remains but one source of a therapeutic serum at the present time. This is in the blood of persons recently recovered from the disease. It is quite probable that the blood of convalescent patients contains antibodies for the specific agent of the disease. It would be desirable to inject citrated convalescent blood into the muscles of patients with pneumonia at least. Naturally such blood should be known to give a negative Wassermann reaction. In view of the strikingly beneficial results from convalescent serum in scarlet fever secured by a number of observers, it seems reasonable to try this in influenzal pneumonia, especially as it is devoid of any harmful effects.

PROPHYLAXIS

The measures to be taken to prevent the spread of the disease comprise all those which interfere with the transfer of the infectious materials from the sick to the uninfected. This includes isolation of the patient, and the intelligent use of proper gauze masks by the attendant. In the time of an epidemic, prompt and efficient isolation of the first cases in a community could accomplish much. If this has been neglected and the infection has spread among the population, measures which prevent the coming together of numbers of persons in close quarters are to be employed. The desirability of closing schools in a large city in the presence of an epidemic is a measure of doubtful value. In smaller places this is more reasonable, and the danger of infection when children are outdoors should be less than when they are brought together in a schoolroom.

1. Meltzer, Samuel: The Therapeutic Value of Oral Rhythmic Insufflation of Oxygen, THE JOURNAL A. M. A., Oct. 6, 1917, p. 1150.

The Toll of Tuberculosis.—Though the sacrifice of lives in the present war has been so enormous as to make all previous losses on the battlefield appear slight in comparison, it nevertheless appears to be a fact that this frightful war mortality does not greatly exceed, and indeed may be exceeded by, the deaths from tuberculosis under ordinary conditions, if equal areas and periods be considered. In the four years since the war began, the total number of deaths from tuberculosis among the civilian population and in the armies of all the countries engaged has at least approximated the total number of soldiers killed in battle.—Dr. Livingston Farrand.

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SATURDAY, OCTOBER 5, 1918

THE INFLUENZA OUTBREAK

As set forth elsewhere in this issue,[1] widespread outbreaks of acute respiratory infection have occurred at irregular intervals for many centuries. The general clinical manifestations and the complications have been always practically the same. Owing to conditions that are far from being adequately understood, such infection now and again spreads over the world with great rapidity and in a manner that was altogether mysterious and disconcerting until we learned that it never spreads faster than human travel. It seems as if in the course of evolutionary processes there suddenly is liberated a form of infectious agent against which large numbers of people offer little or no resistance and which is transmitted readily from person to person under the most diverse hygienic and geographic circumstances. That the peculiarly subtile nature of these outbreaks was recognized long before the bacteriologic era is indicated by the introduction of the name influenza, which means, literally, influence. The question as to the real nature of this "influence," it must be acknowledged, is not settled definitely. The discovery by Pfeiffer in 1890, at the time of the last pandemic, of the influenza bacillus (*B. influenzae*) in the sputum and respiratory tract of influenza patients seemed, it is true, to have settled the matter. At any rate, Pfeiffer's claim that he had discovered the cause of influenza secured fairly general acceptance except possibly in France.

Since then, however, the influenza bacillus has been found to be present in practically all cases of whooping cough and in a large percentage of the cases of measles and scarlet fever, as well as in tuberculosis and chronic bronchitis. Minor epidemics of acute respiratory infection, clinically regarded as epidemics of influenza, have occurred in which the influenza bacillus was not present regularly in the sputum[2] or the respiratory tract. In such epidemics, as well as in the great pandemic of 1889-1890, streptococci and pneumococci occurred quite regularly in the respiratory tract; indeed, a large group of French and German investigators regarded the great pandemic as a streptococcus or mixed streptococcus and pneumococcus infection. We see that as a matter of fact the only evidence that influenza is caused by the influenza bacillus, up to the time of the present outbreak, is the demonstration by Pfeiffer and others of the presence of the bacillus among other bacteria in the respiratory tract of patients with influenza. The production of influenza in animals by injections of pure cultures of the bacillus has not given any decisive results. No distinctive immunologic reaction has been discovered, showing that the body reacts specifically to the influenza bacillus in the course of influenza. In truth, the evidence in favor of the influenza bacillus is not any stronger or different from that which can be urged in favor of the streptococcus, pneumococcus or other bacteria. And if we grant the possibility that the influenza bacillus may cause outbreaks of influenza, wherein lies the deep difference between such strains of the bacillus and the strains found in whooping cough, measles and other conditions?

The "influence" in influenza is still veiled in mystery. It is also too early to consider in detail the outcome of the etiologic investigations of the present outbreak; already contradictory results have been recorded, and for the present we await further developments. We may anticipate, however, highly valuable and interesting contributions when the full observations on the outbreaks at the Great Lakes Naval Training Station and other military camps, as well as in civil groups, are published. The recent remarkable work on the spread and prevention by selective isolation of streptococcus bronchopneumonia in measles and other conditions in our Army camps sets a fine example, which we believe will be duplicated in connection with influenza.

1. Epidemic Influenza, Therapeutics Department, this issue, p. 1136.
2. Mathers, George: Etiology of the Epidemic Acute Respiratory Infections Commonly Called Influenza, Proc. Inst. Med. Chicago, 1916, **1**, 84; Bacteriology of Acute Epidemic Respiratory Infections Commonly Called Influenza, Jour. Infect. Dis., 1917, **21**, 1.

THE DEFENSE OF CORN AS A WAR TIME FOOD

The United States Food Administration, as we have pointed out, has been particularly careful to fortify its pronouncements and dietary admonitions by reference to the judgment of scientific experts, and has frankly stated that so far as nutritional value is concerned it makes practically no difference whether we eat wheat or oats, rye or barley. Wheat flour, which people are asked to conserve, has just one advantage over the other cereals: it can be made into lighter and more durable bread.

Since our entry into the war, corn has become the most important and popular substitutive cereal. The mill products of maize are rapidly obtaining vogue in the nutrition of large numbers of our population. The value of dependable information is thus manifoldly emphasized. It may rightly be admitted that the maize kernel, by itself, is by no means an adequate

or complete food. If we except milk, few individual foods are sufficiently perfect in chemical make-up to satisfy the definition of an adequate diet. Neither sugar nor butter are all sufficient foods when used alone, and no one possessing the rudiments of physiologic education regards them as such. Since it has been learned that corn contains a considerable proportion of a protein which is unquestionably inadequate as the sole source of nitrogen to the organism, this cereal has acquired an unintended reputation of dietary inferiority.

But corn contains more than one protein, and the true value of its combination can be ascertained only by physiologic studies with the products of the entire kernel as it is popularly used, rather than by feeding experiments with isolated proteins. We have already referred to the experiments of Sherman, Wheeler and Yates[1] indicating that the substitution of maize protein for that of wheat to the extent of from one fifth to one third of the total protein intake was found to be without unfavorable effect on the nitrogen balance, whether the test was made by abrupt substitution in a low protein diet, or by ability to maintain equilibrium for a long time on a low protein diet of which the protein was largely that of corn meal. In each of these cases there was some discomfort of digestion attributed at the time to the unaccustomed use of relatively large quantities of corn meal, but perhaps at least equally attributable to the fact that the diet as a whole was too bulky and too starchy for the summer weather in which the experiments were performed.

In later experiments, likewise conducted in Professor Sherman's laboratory at Columbia University,[2] New York, corn meal replaced all other starchy food and actually furnished from 73 to 97 per cent. of the total nitrogen intake. The investigators found that, in the maintenance metabolism, the efficiency of the maize protein was about the same as that reported for the prized wheat. Nitrogen equilibrium was maintained over long experimental periods with a low protein intake, the largest part of which consisted of maize protein. This must not be construed into an argument for the exclusive use of such protein in the dietary of growth, whether it be during adolescence, pregnancy or lactation. It is more than likely that small supplements of other protein foods will greatly enhance the value of the diet. But the lesson of this investigation will be properly presented by quoting in part Sherman's conclusion that certainly one need not hesitate on the score of the protein intake to substitute maize products entirely for the corresponding products of wheat, even when these make up the main part of the food supply. Physicians need to be armed with such opinions when their can't-eat-substitutes-for-wheat patients importune them.

1. Corn in the War Time Dietary, editorial, THE JOURNAL A. M. A., June 15, 1918, p. 1865.
2. Sherman, H. C., and Winters, J. C.: Efficiency of Maize Protein in Adult Human Nutrition, Jour. Biol. Chem., 1918, **35**, 301.

THE REGULATION OF BODY TEMPERATURE

It requires little analysis to discern that the temperature of an object represents the resultant of two factors: the gain of heat from without or within and the loss of heat. The body temperature of an animal may therefore be conceived to represent a balance between heat production and heat dissipation. In some organisms which we term cold-blooded animals, like the frog, the temperature of the body is ordinarily only slightly higher, at most, than that of their environment. Among the so-called warm-blooded animals, including man, on the other hand, the balance is so adjusted that it remains fairly constant for the individuals and the species, despite wide variations in the temperature of their surroundings.

To account for this unique regulatory phenomenon it has become popular within recent years to assume the existence of a special "center" which acts analogously to a thermoregulator. To recall the various precise locations of this hypothetic spot in the central nervous system, which have been postulated since the classic experiments of Aronsohn and Sachs in 1885 on "heat puncture," would take us too far astray in the fields of physiologic literature. Latterly the complications of uncertain location have been increased by the claim of a duality of mechanisms—a thermogenic or heat center and a thermolytic or cold center in the midbrain. The difficulties of those who defend the existence of such well defined heat-regulatory centers are augmented by the fact that any form of experimental stimulation which results in an increase in muscular activity thereby produces an otherwise explicable augmentation of heat; furthermore, the advocates of heat centers have found it difficult to account for the often repeated assertions of experimentalists that large portions of the postulated brain areas can be removed without consequent loss of temperature regulation.

Thus the problem under consideration has been left in great uncertainty—in that state in which textbooks marshal the significant evidence for and against a hypothesis and leave to the reader the discovery of the true solution. In such cases the only hope of success lies in the acquisition of new facts such as have recently been contributed by Lillian M. Moore[1] from the Spreckels Physiological Laboratory of the University of California. She has directed her attention to the corpora striata, the favored location of the centers. Puncture of this portion of the brain, the classic method of stimulation, was not attended by hyperthermia in more than a few cases out of many trials. Furthermore, she found that after removal of the caudate nucleus in rabbits and the cerebral hemispheres

1. Moore, Lillian M.: Experimental Studies on the Regulation of Body Temperature, I, Normal Temperature Variations and the Temperature Effects of Operative Procedures, Am. Jour. Physiol., 1918, **46**, 24; II, Relation of the Corpus Striatum to the Regulation of Body Temperature, ibid., 1918, **46**, 253.

in pigeons—both warm-blooded species—a normal body temperature still was maintained. Evidently, then, the corpora striata are not essential for the maintenance of a constant body temperature. As this research offers no confirmation of the existence of special "heat centers" in the brain we may well ask whether the regulation of temperature is perhaps accomplished in some way analogous to that of blood pressure reaction, osmotic pressures, etc., in the organism. The uniform behaviors of these are not ascribed to specific centers, but have been attributed to equilibrium reactions involving physicochemical phenomena. The correct solution of the question of temperature regulation is of more than academic interest to the physician who is desirous of understanding the scientific basis underlying his use of antipyretic drugs as well as the genesis of fevers.

THE SIGNIFICANCE OF URINARY AMMONIA

Among the nitrogenous constituents of the urine, derivatives of ammonia are practically always present. Under normal conditions the quantity of ammonia thus eliminated by a healthy adult is not large; it usually amounts to less than half a gram per day. In certain diseased states, however, multiples of this quantity may be found in the urine. We do not refer here to the ammoniacal urines that result from bacterial decomposition of urea in the bladder and genito-urinary passages, but rather to a metabolic component directly secreted by the kidneys.

There was a time, not many years ago, when this ammonia in the urine was looked on as the result of a pathologic disturbance in urea formation. In consequence of the deaminization of amino-acid complexes, ammonia is presumably continually being formed in the body and promptly synthesized into the characteristic final end-product of nitrogenous metabolism, urea. It is easy enough to suppose that an upset in the later stage would leave the precursor of urea to be eliminated as such. A growing mass of experimental evidence has made it seem more than doubtful whether the urea-forming function is ever so severely impaired. Indeed, it appears to be efficient under many tested conditions of severe tissue damage. A better explanation of the appearance of ammonia has been afforded by the indication that it serves to neutralize acid either formed in the body by metabolic processes or introduced as such.

A classic research by Janney[1] has made it probable that the ammonia in the urine has as its sole function the neutralization of acid products and ceases to be formed in the presence of an excess of fixed alkali. He gave sodium bicarbonate or citrate to men and found that the quantity of ammonia in the urine was reduced to almost undeterminable traces. If any doubt as to the significance of the results remains, it must be dispelled by the latest contribution to this subject, Denis and Minot[2] of the Massachusetts General Hospital have found that it is not possible in normal subjects to obtain urines absolutely ammonia-free by the long continued administration of alkalis. But when the test is made on nephritics under comparable conditions of diet, even the last traces of ammonia disappear. Evidently the nephritics retain the drug for a longer time, thus allowing the alkali more time to exert its neutralizing effects. This is substantiated by the actually demonstrated lag in the excretion of the excess of the carbonate. As further indication of the rôle of acids formed in the metabolism of protein, it was observed by Denis and Minot that during periods of high protein feeding less than 50 per cent. of the ingested alkali was recovered, whereas after diets lower in protein the percentage of recovered bicarbonate amounted to nearly 90. There is no reason today for believing otherwise than that the sole function of the ammonia found in the (undecomposed) urine lies in the neutralization of acids arising during the normal metabolic process.

1. Janney, N. W.: Ztschr. f. physiol. Chem., 1910-1911, **76**, 99.

2. Denis, W., and Minot, A. S.: Ammonia Excretion as Influenced by Alkalis, Jour. Biol. Chem., 1918, **35**, 101.

Current Comment

FOOD CONSERVATION FOR 1918-1919

Mr. Hoover, as food administrator, has given our allies the notable message of President Wilson, telling them that we will eat this year at a common table with them, and has pledged the American people to add an additional 5,000,000 tons to the 10,000,000 tons we sent last year, or 15,000,000 tons in all. We are to eat a common war bread with them made with a 20 per cent. substitution of flours from other grains mixed with that from wheat. The people of France, Great Britain and Italy have learned how to use substitutes so well that we can send them our quota from any of our durable foods. The bountiful wheat harvest will meet the present war needs and permit of the storage of a reserve for emergencies or against a short crop next year if we are all wise and careful. We dare not again see the national flour barrel as it was last summer when, just before the new crop came in, we had only ten days' supply in the country. Our margins must not be so narrow hereafter, particularly as we decrease our productive man power to build up the Army. Conservation for the coming year, aside from sugar, will probably be less dramatic than last year with its "wheatless days" and "meatless days," but it will have to be even more intense than before. All must reduce their intake to the physiologic limit that permits of the necessary hard war work. There must be no waste, less must be bought and less consumed, and the clean plate of our New England ancestors must again be the symbol of American thrift and American endeavor to serve by saving. Physicians

must needs more and more advise their patients as to the use of foods and of the amounts actually needed for health. They can become active and sane exponents of the national food conservation program. The great results from the voluntary savings of the past year show the high intelligence and sensitive conscience of the American people. The majority of them need only to be told what to do. With our allies and ourselves at the common table, with the gross division of our food supplies based on the fundamental needs of the body in calories, the physician, reaching as he does into innumerable homes, has a new and inspiring opportunity for that guidance that should be his right because of superior knowledge.

THE PROPAGANDA OF THE V. M. S. C.

The latest Press Bulletin issued by the Volunteer Medical Service Corps, just received, consists of a letter of transmittal, "To the Editor," signed by the Assistant Secretary of the General Medical Board; an "Official Announcement" from the President of the V. M. S. C. and the Chairman of the General Medical Board; and five foolscap pages in the form of questions and answers concerning the V. M. S. C. This Bulletin seems to have been issued to emphasize what the name of the organization indicates—that is, that this society is purely voluntary. To quote from the "Official Announcement":

> No official or committeemen representing the Volunteer Medical Service Corps or the General Medical Board of the Council of National Defense is now authorized or has been authorized to favor any organized or unorganized method of coercion in inducing members of the medical profession to join the Medical Corps of the Army or Navy, or the Volunteer Medical Service Corps. Our committeemen are especially urged against favoring any movement that would threaten to impair a medical man's standing in his local, state or national society because he refused to enroll in the Army or Navy, or the Volunteer Medical Service Corps.
>
> It must be made clear that the Volunteer Medical Service Corps is a volunteer organization which has for its object the enrolment and classification of the profession.

THE JOURNAL is glad that there is to be a change in the propaganda in the procedure of building up this organization. Our profession is no longer to be threatened and coerced into it, as has been the case, especially during the more recent "drive" since the reorganization on August 2. Not only have physicians been threatened with having their names published in the newspapers, thus publicly branding them as "slackers," but the methods of promotion of this society finally reached the stage in which physicians who were not commissioned and who did not join this organization were threatened with loss of membership in county societies.[1] The medical profession is to be congratulated that these coercive measures are no longer to be employed. The general and hearty response of physicians from the time we entered the war to every call for the service should have forbidden the employment of measures which reflect on our profession and which the V. M. S. C. itself is now forced to decry.

1. As an illustration the following notice appears in the Bulletin of the Buchanan (Missouri) County Medical Society, Sept. 17, 1918:

Notice is hereby given that at the coming meeting of the society the following resolution will be introduced in accordance with request from the National Council of Defense, Medical Section.

Resolved that, (a) After November 1, 1918, applicants for membership in the Buchanan County Medical Society shall be rejected unless they are members of the Medical Reserve Corps of the Army or Navy, or of the Volunteer Medical Service Corps.

(b) The membership of any physician in this society who is not a member of the M. R. C. of the Army or Navy, or of the V. M. S. C. shall terminate as soon after Nov. 1, 1918, as his membership for the current year expires.

UNCERTAINTY REGARDING PREMEDICAL STUDENTS

There is considerable confusion in colleges and universities regarding the courses for premedical students, but definite instructions on this point have not as yet been sent out. Paragraph 3 of the circular letter from the Committee on Education and Special Training, of August 28, specifically says that "the student soldiers will be given military instruction under officers of the Army and will be kept under observation and test to determine their qualification as officer-candidates, and technical experts such as engineers, chemists and doctors." This indicates that the committee had not forgotten the importance of safeguarding the supply of physicians. The circular letter in regard to curricula, however, makes no provision for premedical education. Five programs of instruction were prescribed, these being to prepare students for the five following services: A, Infantry, Field Artillery and Heavy Coast Artillery; B, Air Service; C, Ordnance Corps and Quartermaster Corps; D, Engineer Corps, Signal Corps, and Chemical Welfare Service, and E, Transport Service and Tank Service. Program D, which was arranged for engineers, the signal corps and chemical welfare service, might readily provide also for premedical education if the Committee on Education and Special Training would permit it. If special instructions are intended regarding premedical students they should be issued at the earliest possible moment. Otherwise premedical students will be forced to enter one of the five forms of service referred to above and confusion may result.

THE ORIGIN OF CERTAIN ANEURYSMS

It has been noted as a seemingly remarkable result in studies of experimental pathology conducted by Halsted[1] at the Johns Hopkins Medical School that, after constriction of large arteries in suitable degree by metal bands, a dilatation of the blood vessel occurs distal to the obstruction rather than proximal to it and where it might have been expected. Halsted believes that this helps to explain in a measure the not uncommon occurrence of aneurysms of the subclavian artery distal to a cervical rib. In an analysis of 525 clinical cases of cervical rib, 106 were found in which the subclavian had been compressed; and in twenty-one of these, aneurysm or dilatation of this vessel distal to the site of constriction had been noted. The attempts to explain the phenomenon have assumed as a possible cause either weakening of the wall of the artery from erosion by the rib, variable or intermittent pulse pressure occasioned by the normal excursions of

1. Halsted, W. S.: Dilation of the Great Arteries Distal to Partially Occluding Bands, Proc. Nat. Acad. Sc., 1918, 4, 204.

the arm, or vasomotor or vasa vasorum disturbances leading to modified nutritional conditions in the wall of the vessel. Halsted is inclined to reject these explanations. He believes that what he describes as the abnormal, whirlpool-like play of the blood in the relatively dead pocket just below the site of the constriction, and the lowered pulse pressure may be the chief factors concerned in the production of the dilatation. The validity of this conclusion must be established before a rational method of cure can be instituted in the management of such aneurysms.

Medical Mobilization and the War

Work of Advisory Boards

A telegram addressed to all draft executives calls attention of Local Boards to Section 123 as amended and as appearing in the second edition of the Selective Service Regulations and to the fact that a registrant no longer has the right or privilege of applying to be sent to a Medical Advisory Board.

Women Physicians Wanted for Anesthetic Service

Dr. F. H. McMechan, secretary of the Interstate Anesthetists and the American Anesthetists, Avon Lake, Ohio, states that he is authorized to secure qualified women physicians under 45 years of age as anesthetists for war service. Women physicians desiring to enter this service may communicate directly with Dr. McMechan.

Gas Hospital Unit Starts for France

The first hospital unit designed exclusively for gassed victims has started recently for France. This unit is the unit of the Women's Overseas Hospitals. The chief of the medical staff is Dr. Marie Louise Lefort, New York City, and with her are associated Dr. Adah McMahan, Lafayette, Ind., Dr. Irene M. Morse, Clinton, Mass., Dr. Elizabeth A. Bruyn, Brooklyn, and Dr. Alice M. Flood, New York City. The hospital has accommodation for 300 patients, the equipment is mobile, and has for its immediate needs, two ambulances, one 3-ton truck and one 2-ton truck.

Division Surgeons Appointed

Lieut.-Col. William T. Cade, Jr., has been appointed division surgeon at Camp Sherman, Chillicothe, Ohio; Major William W. Pretts has been appointed sanitary inspector, and Lieut. Harry H. Sumner, assistant to the division surgeon.

Lieut.-Col. James F. Johnston has been appointed division surgeon at Camp Wadsworth, Spartanburg, S. C.; Major Thomas W. Maloney has been appointed inspector, and Lieut. John F. Schafmeister, assistant to the division surgeon.

Lieut.-Col. John J. Roddy has been appointed division surgeon at Camp Cody, Deming, N. M.; Capt. Alvin M. Fortney has been appointed sanitary inspector, and Lieut. L. M. Spalding, assistant to the division surgeon.

Officers' Uniforms Available Through Quartermaster's Department

A general order makes the following announcement relative to the supply of officers' uniforms:

III. Section IV, G. O. 56, W. D., 1918, is rescinded and the following is substituted therefore:

1. The following cloths are adopted as standard for officers' uniforms, and all uniforms for officers made in the United States after Dec. 31, 1918, will be one of these prescribed standards:

For coat and breeches, summer wear in the United States and in the tropics only: a, an O. D. cotton; b, a 13-ounce all wool worsted gaberdine. For coats, breeches and overcoats: a, a 12-ounce worsted serge; b, a 16-ounce worsted serge; c, a 16-ounce whipcord; d, a 21-ounce whipcord or elastique; e, a 20-ounce melton. For riding breeches: a, a 23-ounce Bedford cord. For overcoats: a, a 32-ounce melton or kersey.

2. The quartermaster corps will after Dec. 1, 1918, carry a supply of these cloths, and officers can purchase their personal requirements at the government prices. Samples of cloths with the issue prices will be kept on hand by all camp, cantonment and post quartermasters and may be examined by officers on request after the date mentioned. For the present stock will be carried at the following depots only, but this list will be extended from time to time as cloth becomes available: New York depot, Washington depot, Atlanta depot, Sam Houston depot, San Francisco depot, Chicago depot, St. Louis depot.

3. The quartermaster general will determine by thorough investigation a schedule of fair prices for making uniforms, including all necessary trimmings, linings, etc., but not including the cloths, and prepare a list of responsible tailors who agree to make uniforms for officers at the schedule rates, the quartermaster general guaranteeing to the tailors the collection of bills for all uniforms ordered through the representatives of the quartermaster general. The schedule of prices, the list of tailors agreeing to make uniforms at these prices and the regulations governing the sale to officers of the standard cloths, the placing of orders, the acceptance of uniforms ordered and the payment of bills will then be published to the service.

4. The quartermaster corps will arrange to supply from stock at cost made up (ready to wear) officers' uniforms. These will be provided in only two types of cloth for coats and breeches, namely: The 12-ounce worsted serge and the 20-ounce melton and 32-ounce melton for overcoats. It is expected that an adequate supply can be provided at the principal depots mentioned in Paragraph 2 by Nov. 1, 1918, and later at other depots and camps.

The Epidemic of Influenza in the A. E. F.

The *Weekly Bulletin* of the Medical Service in the American Expeditionary Forces contains the following statement relative to the epidemic of influenza. "This disease which was mentioned previously as 'Three Day Fever' is now known to be due to the true Pfeiffer bacillus, although evidently of a much milder strain than the type which prevailed in the pandemic of 1889. This epidemic, though of remarkable mildness in the two months from April 15 to June 15, has within the past four weeks shown certain characteristics which indicate the kind of increasing virulence with which bacteriologists are familiar in the case of strains of pneumococcus passed rapidly through a succession of susceptible animals such as the rabbit. Onset with temperature of 104, projectile vomiting, severe headache, Kernig's sign and high tension spinal fluid, flowing freely up to 100 c.c. has not been uncommon and many cases have been mistaken for, and some have been treated as, meningitis with antimeningococcus serum. No harm, apparently, has come from the use of the treatment and symptomatic relief has often followed the withdrawal of the excess fluid, but confusion is likely to arise when the fluid clear on the tap becomes turbid with leukocytes from the reaction following the introduction of the antimeningococcus serum. If the meningococcus is not found on smear or culture it is well to be satisfied with withdrawal of fluid and not to give serum. Pneumonias have been more common sequelae in July than in April.

Prompt hospitalization effectively guards against serious sequelae and is still the best treatment to be offered. Relief from headache by aspirin, abundant use of water internally, gentle laxative, and, when the temperature has fallen, a nourishing diet, have seemed to be the approved treatment. The same warning should be given now as always in treating influenza, that is, warn against premature return to hard work. The epidemic is about at an end so far as A. E. F. troops are concerned and has been throughout of a benign type, though causing considerable noneffectiveness."

Medical Teachers Registered Under Selective Service Act

A circular letter from the Committee on Education and Special Training sent on Sept. 19, 1918, to all institutions having units of the Students' Army Training Corps.

1. Men heretofore or hereafter classified in Class I, Group A, and called to military service will not be granted furloughs.

2. Teachers who are essential are eligible to claim deferred classification under Section 80, Selective Service Regulations, and they are encouraged to do so. Such deferred classification should be claimed for them by the educational institutions by which they are employed.

3. Teachers who are denied deferred classification by the district board and who are liable to call to military service will be encouraged to request voluntary induction in the unit of the S. A. T. C. stationed at the institution where such instructors are employed.

4. In very exceptional cases and on the recommendation of the educational department of the committee teachers who have already been drafted and are now at mobilization camps will be transferred back as soldiers on active duty to the unit of the S. A. T. C. where needed; provided such instructors do not object to return as soldier instructors, have not been permanently assigned in a capacity wherein their ser-

vices will be of great value to the Army, and have not already been designated to attend officers' training schools.

5. Since the colleges are under contract with the War Department to train enlisted men in the U. S. Army, essential teachers are obviously engaged in occupations that are strictly "necessary to the maintenance of the military establishment." It is, therefore, expected that the really essential professors and teachers will be granted deferred classification under the new law on this account. Heads of institutions should see to it that district boards and their industrial advisers are fully informed of all the facts in every case.

Disease Bulletin for A. E. F.

Some interesting notes regarding the Medical Service for the American Expeditionary Forces appear in the weekly *Bulletin of Disease*, September 9, published by the chief surgeon, A. E. F.:

Gas Fright in the Fifth Division.—In a recent attack 251 patients were sent to the field hospital as gassed cases. It was found that over half of these were not sufficiently gassed to require evacuation. It is pointed out the greatest discretion must be used by surgeons in sorting these cases. Where concentrated gases are employed, short exposure only is required to produce severe poisoning. When gases are highly diluted the men may be exposed for some time and still be able to continue on duty. Many men are suffering, not from gassing, but from gas fright. All they need is reassurance. Surgeons must base their diagnoses on physical sense rather than on statements made by patients: place more reliance on statements made by the patient's lungs than on statements made by his mouth.

Influenza Epidemic in the 37th Division—Spitting.—An inspection of this division showed that some men were billeted in an ill ventilated and dusty loft over a stable. The men were working long hours under pressure and returned at night always fatigued and wet from their work in the dugouts. The first cases occurred on July 28, the third case on August 7, and fourteen cases between August 9 and 13. The daughter of the woman who owned the billet fell ill with the disease and the mother made the significant remark that she felt that her daughter had been infected because of the terrible American habit of spitting; that her courtyard had been kept constantly wet by the spitting of the men billeted in the stable. This was an interesting commentary on one of the few but, nevertheless, very serious breaches of hygiene practiced by American troops. It was recommended as a result of this inspection that an effort be made to start a campaign of education to diminish the spitting habit among troops.

Trench Foot.—This is largely a matter of discipline. The cause is constant standing in wet places and impairment of the circulation. Twenty-four hours is the limit for a tour of duty in a water logged trench. Rubber boots are useful when actually working in the trenches, but they are to be used only for this purpose and are to be removed when the necessity is passed. Rubber boots are not suitable for dry cold. If trench foot develops in a command the commanding officer is to be grilled on the following questions, in the form of a report which he makes out every time for each man acquiring trench foot: (1) frequency of baths; (2) frequency of change of socks; (3) length of time on duty and where; (4) condition of trenches; (5) efforts made to improve trench conditions; (6) reason for failure to attain improvement; (7) were unfavorable conditions reported? if not, why? (8) with what result? (9) condition of dugouts; (10) condition of other men of platoon.

This army evacuated in 1915-1916, 3,311 trench foot cases. In 1916-1917 there were 395 evacuated for this trouble. This is due to better care of the feet and better trenches. One should remember always that in the case of trench foot you should use antitetanic serum.

Notes on Venereal Disease from Base Section No. 2.—

	Prophylactic Treatments Given		New Cases V. D.	Cases Developing Following Failure to Take Prophylaxis
Total white troops.....	76,011	4,959	95	37
Total colored troops....	11,008	1,611	41	23
Since organization of B. S. No. 2 there have been		93,343	2,549	1,025

Watch Out for Imported Cooties.—We have enough of the European varieties for experimental purposes. On a transport arriving recently in one organization there were the following number of cases of well established pediculosis pubis: 338th Labor Battalion, Co. A, 22 cases; Co. B, 26 cases; Co. C, 37 cases; Co. D, 27 cases.

Missing

Lieut. Leonidas Barkdull Faulk, M. C., U. S. Army, Monroe, La., is reported in the Official Bulletin of July 5, to be missing in action.

In Captivity

Notification has been received of the capture of Capt. Arthur A. Mitten, Milwaukee, at Fismes, August 4.——Dr. Howard F. Kane, Washington, D. C., on duty in the British Expeditionary Forces, is reported to be a prisoner at Rastatt, Germany.

Wounded

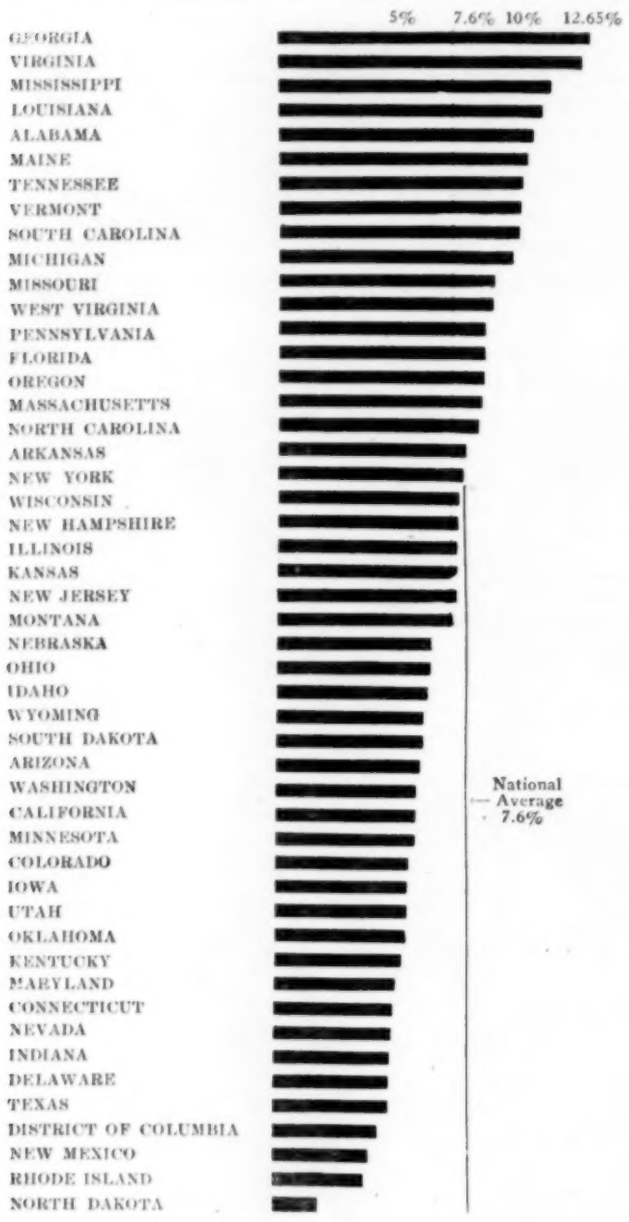
The following medical officers are reported to have been wounded: Lieut. Wesley Lewis Boyden, M. C., U. S. Army, Seymour, Wis., September 6, severely; Lieut. William Wallace Dodge, M. C., U. S. Army, Washington, D. C., severely; Capt. James V. Nelson, M. C., U. S. Army, Logansport, Ind., severely; Lieut. Hugh Rannell Hildebrant, M. C., U. S. Army, Dundee, Mich., severely; Lieut. William Edwin Park, New Milford, Pa., degree undetermined; Lieut. Fred B. Shaffer, Somerset, Pa., wounded in the head; Lieut. William E. Lawhead, U. S. Navy, on duty with the Marine Corps, severely; Lieut. Finis E. Rushing, Coalgate, Okla., degree undetermined; Lieut. Charles A. Jenkins, M. C., U. S. Army, Willimantic, Conn., wounded and gassed; Lieut. Charles C. Ryan, Republic, Pa., slightly; Lieut. Holland T. Ground, Virginia, Minn., severely; Lieut. Shores Erastus Clinard, Sorrento, Fla., degree undetermined; Lieut. Raymond Gene Tuck, Marlette, Mich., severely; Lieut. Frederick J. Cullen, Naparine, Wash., severely.

Awards for Valor

The Distinguished Service Cross has been awarded to Lieut. Thomas M. Barber, M. C., U. S. Army, on duty with the infantry. "On May 28 to 30, 1918, near Cantigny, France, he repeatedly demonstrated heroic self-sacrifice by caring for wounded under enemy fire and with apparent contempt for his own safety. When his aid station had been destroyed by shell fire he promptly moved into a shell hole nearby and continued his faithful work."——Lieut. Frank H. McGregor, M. C., U. S. Army, Mangum, Okla., has been awarded the British Medal for bravery.——Major John T. Barbee, M. C., U. S. Army, Jackson, Tenn., has been decorated for bravery.——Major Wilbur M. Phelps, Staunton, Va., has been awarded the Croix de Guerre.——Capt. Alson J. Hull, M. C., U. S. Army, Williamstown, Mass., has been awarded the British Military Cross.——Lieut. William A. Toertmeyer, M. C., U. S. Army, Cincinnati, has been awarded the Distinguished Service Cross. "At the battle of Cantigny, France, May 28-31, 1918, he readily, on his own initiative, left the security of the trench to administer first aid under fire and in full view of the enemy snipers and machine gunners. His brave conduct was a noble example and his ministrations relieved suffering and saved lives."——Private John B. When, medical department, assigned infantry, has been awarded the Distinguished Service Cross. "For three nights at Cantigny, France, May 28 to 30, 1918, he worked unceasingly under fire, bringing the wounded to safety, ministering to them under his own initiative. He repeatedly left shelter to help wounded men."——Private Frank J. Reynolds, medical department, assigned infantry, "During the fight of Cantigny, France, May 28 to 30, 1918, while acting as stretcher bearer, he constantly and fearlessly exposed himself to machine gun fire to attend wounded, frequently under his own initiative when he might have remained in shelter himself."——Lieut. Leo J. Crum, M. C., U. S. Army, Kalamazoo, Mich., has been cited in orders. At Cierges he had his first aid station in a house at the extreme edge of the village under continuous shelling and was successful in evacuating all his patients.——Drs. Mary Lee Edward, Caroline Sandford Finley, New York City, and Anna I. Von Sholly, Flushing, N. Y., have received the Croix de Guerre from the French government for "excellent surgical work performed under heavy barrage in France."

REJECTIONS AT CAMPS FOR PHYSICAL DEFECTS

The subjoined chart and table, prepared at the office of the Provost Marshal-General, indicate the relative number of registrants inducted and rejected in the various states for the period from Feb. 10 to September, 1918 (date checked):



RECORD FROM FEB. 10, 1918, TO DATE INDICATED

United States	Inducted	Accepted	Rejected		Date Checked September
			Number	Per Cent.	
Alabama	36,845	33,054	3,791	10.29	10
Arizona	3,309	3,116	193	5.83	6
Arkansas	33,339	30,782	2,557	7.67	11
California	35,607	33,605	2,002	5.62	11
Colorado	14,786	13,983	803	5.43	11
Connecticut	19,347	18,429	918	4.74	11
Delaware	3,635	3,468	167	4.59	11
District of Columbia	5,973	5,721	252	4.22	11
Florida	20,048	18,354	1,694	8.45	11
Georgia	47,701	41,667	6,034	12.65	16
Idaho	8,863	8,323	540	6.09	11
Illinois	128,834	119,413	9,421	7.31	17
Indiana	45,276	43,186	2,090	4.62	10
Iowa	49,178	46,524	2,654	5.40	12
Kansas	31,478	29,182	2,296	7.30	12
Kentucky	39,951	37,892	2,059	5.15	12
Louisiana	34,997	31,232	3,765	10.75	12
Maine	11,311	10,172	1,139	10.07	13
Maryland	22,895	21,774	1,121	4.90	13
Massachusetts	51,095	46,859	4,236	8.29	12
Michigan	64,620	58,773	5,847	9.05	17
Minnesota	53,693	50,675	3,018	5.62	13
Mississippi	31,284	27,829	3,455	11.05	13
Missouri	58,682	53,493	5,189	8.84	9
Montana	15,994	14,849	1,145	7.15	9
Nebraska	17,444	16,342	1,102	6.31	9
Nevada	2,020	1,925	95	4.70	9
New Hampshire	5,692	5,283	409	7.32	9
New Jersey	50,447	46,763	3,684	7.30	16
New Mexico	7,858	7,551	307	3.90	9
New York	156,223	144,351	11,872	7.59	17
North Carolina	44,817	41,173	3,644	8.13	4
North Dakota	17,867	14,534	3,333	1.86	3
Ohio	81,223	76,107	5,116	6.29	18
Oklahoma	40,401	38,247	2,154	5.33	9
Oregon	14,046	12,863	1,183	8.42	9
Pennsylvania	121,644	111,359	10,285	8.45	9
Rhode Island	7,237	6,972	265	3.66	9
South Carolina	31,533	28,449	3,084	9.81	4
South Dakota	15,375	14,458	917	5.96	9
Tennessee	35,016	31,526	3,490	9.96	9
Texas	79,424	75,785	3,639	4.59	10
Utah	6,166	5,833	333	5.40	10
Vermont	4,671	4,207	464	9.93	11
Virginia	36,506	31,970	4,536	12.43	13
Washington	18,703	17,650	1,053	5.63	10
West Virginia	28,887	26,355	2,532	8.77	10
Wisconsin	49,295	45,648	3,647	7.40	10
Wyoming	6,119	5,752	367	5.99	10
Totals	1,747,355	1,613,458	133,897	7.6	

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 24 and 31, September 7, 14, 21 and 28.

ALABAMA

Anniston—Cleveland, C. H., Jr.
Birmingham—McQuiddy, R. C.
McFall—Thwoatt, D. H.
Montgomery—Pollard, C. T.

ARIZONA

Bisbee—Fitzgerald, G. H.

ARKANSAS

Fort Smith—Thompson, E. M.
Gurdon—McLain, C. W.
Marked Tree—Baird, J. L.
Roland—Brocks, C. M.
Rosboro—Baker, W. P.
Searcy—Edrington, D.

CALIFORNIA

Fresno—Martin, W. P.
Holtville—Wimp, W. H.
Los Angeles—Ferry, F. C.
Frees, B. M.
Gilbert, W. H.
May, H. C.
Monteleone, J.
Pinkerton, B. G.
Tebbetts, H. B.
Madera—Ranson, D. H.
Ontario—Titus, J. H.
Placentia—Thibodo, F. H.
Sacramento—Davis, H. J.
San Jose—Dickinson, A. E.
Gerlach, F. C.
Hablutzel, C. E.
San Jose—Smith, A. S. J.
Sonora—Pleth, V.
South Pasadena—Browning, C. C.
Metcalf, C. F.
Susanville—Walsh, F. D.

COLORADO

Denver—Bell, C. C.
Holden, G. W.
Fort Collins—Norton, D. O.
Pueblo—Lucas, W.
Swink—Miller, C. L.

CONNECTICUT

Hartford—Brayton, H. W.
Pendleton, E. B.
Litchfield—Page, C. I.
Ridgefield—Lowe, R. W.

DELAWARE

Milford—Marshall, S. M. D.

DISTRICT OF COLUMBIA

Washington—Harvison, D. B.
Larkin, P. E.
Poole, T. A.

FLORIDA

Bronson—Markey, M. R.
Jacksonville—Smith, M. H.
Lake City—Bates, T. H.

GEORGIA

Cuthbert—Patterson, L. K.
Hawkinsville—Bailey, C. B.
Hazelhurst—Gertman, W. M.
Quitman—McMichael, J. R.
Sycamore—Moore, J. T.
Tifton—Hendricks, W. H.
Woodbury—Allen, W. P.

IDAHO

Mackay—Farrell, N. H.

ILLINOIS

Aledo—Smeltzer, C. E.
Atlanta—Brock, G. W.
Batchtown—Wood, H.
Bloomington—Hawks, J. K. P.
Bushnell—Griffith, J. C.
Champaign—Miller, L. C.
Chicago—Albrecht, C. A.
Beil, H. H.

Chicago—Epstein, A. I.
Graybeal, J. M.
Hartwell, B. O.
Huber, J. M.
Lipshults, G. U.
Luse, H. D.
Lynch, S. E.
Piper, L. P.
Porter, J. L.
Stackable, J. B.
Whitaker, W. B.
Wicks, S.
Zaborktsky, J.
Crystal Lake—Hull, H. D.
East St. Louis—Bozarth, J. A.
Galesburg—Ripley, C. B.
Geneseo—Murphy, J. H.
German Valley—Miller, P. M.
Highland—Kaeser, A. F.
Joppa—Roberts, T. W.
Kankakee—Pratt, E. C.
Kansas—Roberts, J. B.
Libertyville—Martin, F. H.
Oak Forest—Morris, E.
Odell—Tombaugh, J. L.
Oregon—Roe, J. B.
Paris—Gumm, A. G.
Williams, B. G. R.
Peru—Yoder, O. C.
Pleasant Plains—Fink, F. C.
Ramsey—Staff, E. P.
Shelbyville—Monroe, H. E.
Spring Valley — Miltenberger, R. E.
St. Anne—Ayling, G. H.
Waukegan—Ambrose, C. S.
Gourley, F. L.

INDIANA

Alexandria—Kellar, F. G.
Anderson—Austin, M. A.
Azalia—DeLong, O. A.
Bicknell—Staley, T. M.
Converse—Brookie, R. W.
Dana—Strong, D. S.
Dunkirk—Heller, N. L.
Elkhart—Bassler, C. R.
Hoover, E. M.
Gilman—Armstrong, P.
Hammond—Greenleaf, G. F.
Hillsboro—Bounell, E. G.
Indianapolis—Jackson, F. E.
Kokomo—Lung, B. D.
Lafayette—Schreiber, A. W.
Logansport—McCully, C. H.
Monroeville—Steinman, H. E.
Napoleon—Heath, E. E.
Rochester—Taylor, H. W.
Rockport—Ehrman, C. D.
Versailles—Comes, M. J.
Vincennes—Edwards, E. T.

IOWA

Algona—Burke, C. H.
Charter Oak—Huber, S. A.
Dubuque—Bronson, O. A.
Linehan, L. J.
Moes, M. J.
Grinnell—Lauder, C. H.
Talbott, E. F.
Washington—Masson, H. F.

KANSAS

Kingman—Haskins, H. E.
Lexena—Nesselrode, C. C.
Moline—Shaffer, C. E.
Norcatur—Knox, W. E.
Wichita—Carter, W. H.

KENTUCKY

Henderson—Jones, G. F.
Louisville—Baker, M. C.
Clem, J. G.
Kahn, L. H.
Madisonville—Long, R. W.

LOUISIANA

Marksville—LaForgue, L. D.
Plaquemine—Holloway, E.

MAINE

Hebron—Frisbee, E. B.
Lewiston—Morin, R. J.
Limerick—Carpenter, L. W.
South Windham—Moulton, O. G.

MARYLAND

Baltimore—Cole, J. W.
Lancaster, G. E.
Princess Anne—Lankford, H. M.

MASSACHUSETTS

Boston—Fairbanks, A. W.
Flagg, E.
Flagg, H. H.
Martin, D. L.
Chicopee—Agnew, J. R.
Lawrence—Allen, G. S.
Lynn—Underhill, S. G.
Malden—Hunt, W. E.
Melrose—Plumb, D. G.
North Billerica—Forhan, N. K.
Springfield—Benner, R. S.
Boyd, J. V.
Ober, R. B.
Ritter, H.
Yerbury, C. C.
Taunton—Fox, W. Y.
Waltham—Dascobe, O. L.
Wollaston—Curtis, W. G.
West Springfield—Steele, G. L.

MICHIGAN

Calumet—Joy, H. M.
Detroit—Cowen, L. B.
Jentgen, C. J.
McRae, D. H.
Myers, G. P.
Van Hee, J.
Otsego—Whitney, H. E.
Richmond—Greene, I. W.
Whitehall—Smith, C. F.

MINNESOTA

Barnum—Anderson, A. R.
Mazeppa—Radabaugh, R. C.
Minneapolis—Booth, A. E.
McKinney, F. S.
Morton, H. M.
Ziskin, T.
Slayton—Benoit, F. T.
St. Paul—Greene, C. L.
Pearson, F. R.

MISSISSIPPI

Meridian—Touchstone, A. G.

MISSOURI

Bronson—Mitchell, G. B.
Centralia—Hickerson, J. T.
Flat River—Sample, W. D.
Granby—Wilbur, H. L.
Jefferson City—Bedford, S. V.
Kahoka—Bridges, J. R.
Kansas City—Green, L. B.
Orr, T. G.
Wattenberg, J. E.
La Clede—Caldwell, J. C.
Mound City—Perry, D. C.
Neosho—Roseberry, E. M.
Richland—Monday, L. R.
Sedalia—Barnum, K. R.
Dwyer, F.
Dyer, D. P.
St. Charles—Weich, G. N.
St. Joseph—Hunt, W. J.
St. Louis—Davis, F. L.
Gayler, W. C.
Harnagel, F. H.
Hartman, J. A.
Hughes, A. J.
Kieffer, V. B.
McDonald, J. W.
Miller, H. B.
Wilhite, G. O.
Washington—Seibert, D. A.

MONTANA

Butte—McCarthy, P. H.
Cascade—Stratton, O. T.
Great Falls—Porter, E. M.

NEBRASKA

Clatonia—Deardorf, B. M.
Hastings—Carson, W. T.
Kearney—Gibbons, C. K.
Omaha—Follman, J. C.
Kadvay, G. J.
Sumney, H. C.
Weeping Water—Reed, F. P.

NEVADA

Stewart—Morrow, W. B.

NEW HAMPSHIRE

Hampton—Thompson, E. H.
Walpole—Craig, W. P.

NEW JERSEY

Jersey City—Birdsall, C. A.
Millville—Mayhem, C. H.
Newark—Greenwald, M.
Mockridge, O. A.
Streen, M. E.
Roselle Park—Wait, H. N.
Summit—Clark, C. P.
Keeney, C. B.
Trenton—Richardson, H. T.

NEW MEXICO

Dexter—Hubbard, E. J.
East Las Vegas—Crail, F. H.

NEW YORK

Albany—Vogel, H. A.
Albion—Cooper, D. G.
Branchport—Costello, M. E.
Brooklyn—Breitling, C. W.
Hargitt, C. A.
Kranzer, L. L.
Long, J.
Piquet, S. D.
Thompson, J. E.
Buffalo—Scibetta, S. L.
Elmira—Kinner, J. L.
New York City—Armstrong, A. S.
Duffy, J. E.
Dunham, H. G.
Getman, J. E.
Halpern, T.
Keil, F. C.
Mills, W. S.
Muller, E. F.
Nathan, P. W.
Nicholson, A. O.
Polak, M. S.
Prioleau, P.
Rudderow, E. D.
Schwartz, H. J.
Steinbach, L.
Perry—Brownell, J. R.
Verona—George, J. D.
Watertown—Montgomery, H. C.
West Henrietta—Ames, J. A.

NORTH CAROLINA

Canton—Pegram, R. W. S.
Hickory—Menzies, H. C.
Rowland—Carmichael, T. W.
Wilmington—Bolles, C. P.

OHIO

Bloomdale—Sheldon, E.
Bloomville—Fellers, D. W.
Cincinnati—Hulick, T.
Cleveland—Birge, R. H.
Blahd, M. E.
Cohen, A.
Luck, H. C.
McDonald, C. L.
Sharp, W. D.
Timberlake, H. P.
Columbus—Bates, L. V.
McGarvan, C. W.
Engiewood—Furnas, E. E.
Frankfort—Maag, W. D.
Kenton—Bowman, D. H.
Middletown—Bauer, E. O.
Silver, H.
Nevada—Dwire, H. E.
Newcomerstown—Hays, S. B.
New London—Cranston, B. S.
New Paris—Harris, C. H.
Norwood—Sauer, L. O.
Painesville—Barnett, G. F.
Port Clinton—Brindley, A. A.
Portland—Henderson, O. C.
Somerset—Fountain, J. C.
Toledo—Burritt, C. A.
Kahn, D.
Tiffin—Williard, G. W.
Williamstown—Tombough, A. A.

OKLAHOMA

Bokhoma—Oliver, R. B.
Bokoshe—King, J. T.
Granite—Nunnery, A. W.
Norman—Thurlow, A. A.
Okmulgee—Bercaw, J. E.
Ponca City—Arrendell, C. W.
Sapulpa—Harris, B. C.
Shawnee—Colvert, G. W.
Tryon—Gayman, S. E.
Tulsa—Mohrman, S. S.
Wapanucka—Ellis, J. M.
Weatherford—Gordon, J. M.

OREGON

Salem—Walton, R. W.

PENNSYLVANIA

Bellevue—Henry, E. B.
Walker, G. H.
Carlisle—Whistler, E. L.
Christiana—Kyle, E. V.
Dickson City—Cantor, A. S.
Harrisburg—Kreider, J. H.
Johnstown—Sagerson, R. J.
Lancaster—Brown, H. F.
Leacock—Keylor, W. N.
Ligonier—Johnson, J. B.
Monaca—Gormley, J. R.
Narbeth—Faries, C. T.
New Castle—McCune, S. R. W.
New Holland—Hendrickson, L. H.
Philadelphia—Bedrossian, E. H.
Brooke, J. A.
Carey, H. K.
Forman, H. J., Jr.
Goodman, R.
Philadelphia—Kuehner, H. M.
Williams, C. S.
Pittsburgh—Anderson, R. L.
Carroll, T. B.
Denslow, W. B.
Gaggin, V. S.
Hodgkiss, J.
Jennings, C. W.
Maxwell, W. C.
Nicholson, H. S.
Sharon—Heilman, R. S.
Hyde, A. P.
Springville—Diller, W. L.
Washington—Dunkle, G. B.
Lewis, O. G.
Ramsey, G. W.
Wilkes-Barre—Gustites, F. W.

RHODE ISLAND

Providence—Doten, C. R.

SOUTH CAROLINA

Charleston—Guess, J. D.
Hartsville—Edleston, W.
McCormick—Harmon, J. S.
Spartansburg—Myers, D. V.
Woodruff—Workman, B. J.

SOUTH DAKOTA

Brookings—Green, B. T.
Elk Point—Bushnell, W. F.
Howard—Collins, W. H.
Winifred—Barthell, J. F.

TENNESSEE

Ducktown—Kimsey, W. W.
Memphis—Blue, J. B.
Simpson, W. L.
Nashville—Hardy, W. M.
Rockwood—Clack, W. S.

TEXAS

Abilene—Alexander, S. M.
Belton—Crain, A. B.
Dallas—Boyce, W. A.
De Kalb—Beck, J. W. E. H.
Detroit—Caton, J. H.
Hico—Durham, C. E.
Quinlan—Goode, E. P.
Red Oak—Rogers, J. O.
San Angelo—Rush, H. P.
Seminole—Bell, M. C.
Sherman—Ridings, A. L.
Sweetwater—Fortner, A. H.
Waco—Lanham, H. M.

UTAH

Delta—Broaddus, C. A.
Logan—Budge, E. S.
Salt Lake City—Felts, H. B.
Hammond, E. D.

VERMONT

Montpelier—Tindall, W. J.
White River Junction—Stanley, M. P.

VIRGINIA

Litwalton—Pierce, C. T.
Lowesville—Whitehead, W. H.
Middletown—Williams, T. A.
Purcellville—Hirst, V. B.
Richmond—Bear, J.
Swoope—Hartman, W. F.
University—Peterson, W. C.

WASHINGTON

Fort Steilacoom—Keller, W. N.
Seattle—Baldwin, L. B.
Spokane—Wallace, J. E.
Vancouver Barracks — McClurg, C. B.

WEST VIRGINIA

Kempton Lanish, L. J.

WISCONSIN

Glidden—Law, W. G.
Lake Mills—Leicht, P.
Loganville—Westedt, O. E. A.
Milwaukee—Madison, J. D.
Montford—Ketterer, E. A.

WYOMING

Sheridan—Hamilton, O. P.
Newcomer, N. B.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp McClellan, Ala., Lieuts. T. S. McDIERMID, Brilliant; P. K. TAIT, Dora.

To Camp Sheridan, Ala., Lieuts. A. M. WALDROP, Cordova; J. C. MORGAN, Fairfax; J. E. BECK, Mobile.

To Camp Sherman, Ohio, Lieut. J. H. WINN, Huntsville.

To Fort Oglethorpe for instruction, Major J. M. MASON, Birmingham; Capts. J. H. JONES, Camden; R. C. JONES, Mobile; Lieuts. I. B. FARISH, Brewton; S. D. ARMISTEAD, Foley; M. S. WHITE, Hamilton; J. U. REAVES, J. M. WILSON, Mobile; R. C. BAINS,

Siluria. For instruction in military training, urology and dermatology, Lieut. C. E. FARISH, Mobile.

Arkansas

To Camp Logan, Texas, base hospital, Capt. J. I. SEARBOROUGH, Little Rock.
To Camp MacArthur, Texas, Lieut. E. L. HANEY, Hackett.
To Fort Oglethorpe for instruction, Capt. A. BRUNSON, Pine Bluff; Lieuts. A. H. COOK, Hot Springs; R. R. DALE, Texarkana.
To Fort Riley for instruction, Lieuts. D. C. ROBERTS, Huntsville; E. E. SCOTT, Magazine; R. A. HARKINS, Ratcliff; J. D. THORNTON, Willow.

California

To Camp Fremont, Calif., base hospital, Capt. C. D. HUBBARD, Huntington Park.
To Camp Kearney, Calif., Capts. C. B. DIRKS, Eagle Rock; J. S. DERRICK, Los Angeles; Lieuts. C. E. GAGE, Los Angeles; S. J. FITCH, Pasadena; A. F. WELIN, Rio Vista; E. N. CRABTREE, San Diego; J. McCAULEY, Santa Ana. Base hospital, Capt. K. R. SLEEPER, Los Angeles; Lieuts. C. A. ROBINSON, Ione; E. P. WALLACE, Pomona; R. A. JONES, San Francisco.
To Camp Sherman, Ohio, to examine the command for nervous and mental diseases, Capt. G. L. CHAMBERLAIN, Camino.
To Fort Riley for instruction, Lieuts. K. L. SCHAUPP, Palo Alto; B. J. LASSWELL, Quincy.
To Mendocino, Calif., Mendocino State Hospital, Capt. J. A. COLLIE, LaManda Park.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. S. R. DANNEBAUM, San Francisco.
To report to the commanding general, Hawaiian Department, Capt. J. W. WILSON, Oroville. Western Department, Capt. J. L. ARBOGAST, Sacramento.
To San Francisco, Calif., Capt. W. R. MOLONY, Los Angeles.

Colorado

To Camp Logan, Texas, Capt. E. D. BURKHARD, Delagua.
To Fort Oglethorpe for instruction, Lieut. P. C. GEISSLER, Colorado Springs.
To Fort Riley for instruction, Lieut. A. H. PETERS, Colorado Springs.

Connecticut

To Camp Meade, Md., to examine the troops for cardiovascular diseases, Lieut. H. A. MARTELLE, Hartford.
To Fort Oglethorpe for instruction, Capt. C. K. PETERSON, Lakeville; Lieut. G. E. PORTER, Warehouse Point.
To Fort Totten, N. Y., Capt. H. L. WELCH, New Haven.

District of Columbia

To Camp Meade, Capt. A. C. NORCROSS, Washington.
To Camp Wadsworth, S. C., Lieut. J. A. MURPHY, Washington.
To Fort Oglethorpe for instruction, Lieuts. S. BRICKER, J. T. MANN, H. W. MOFFITT, Washington.
To Walter Reed General Hospital, Capt. W. J. MALLORY, Washington.

Florida

To Camp Sheridan, Ala., Lieut. J. C. ELLIS, Perry.
To Fort Oglethorpe for instruction, Capt. E. S. ESTES, St. Augustine; Lieuts. J. F. CRANFORD, Inverness; W. C. BUFFALOW, Jacksonville; J. C. DAVIS, Jr., Quincy.

Georgia

To Camp Jackson, S. C., Lieut. J. O. STRICKLAND, Pembroke. Base hospital, Capt. ST. J. RAOUL DE CARADEUC, Savannah.
To Camp McClellan, Ala., Lieuts. S. W. CARTER, Sr., Thomaston; C. L. AYERS, Toccoa.
To Camp Sheridan, Ala., Lieuts. C. H. PINSON, Stockbridge; W. L. BEAUCHAMP, Williamson.
To Camp Wadsworth, S. C., Lieut. J. P. TURK, Nelson.
To Fort Oglethorpe for instruction, Capts. J. M. BARNETT, Albany; J. R. GARNER, Atlanta; Lieuts. M. WARD, Albany; W. M. RILEY, Americus; H. L. BARKER, Carrollton; M. S. RICHARDSON, Cedartown; M. F. PENNINGTON, Columbus; M. E. WINCHESTER, Ochlocknee; J. A. WARD, Quitman; R. L. JOHNSON, Waycross.
To report to the commanding general, Southeastern Department, Lieut. L. BEASON, Dot.

Idaho

To Fort Oglethorpe for instruction, Capt. E. T. ANDERSON, Weiser; Lieut. E. S. PRINDLE, Spirit Lake.
To Fort Riley for instruction, Lieut. F. M. RAY, Pocatello.

Illinois

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. H. E. RANDOLPH, East Moline.
To Camp Bowie, Texas, Lieut. J. F. CLARK, Chicago.
To Camp Custer, Mich., Lieuts. R. B. ANDREWS, Belvidere; C. BERFIELD, Toulon. Base hospital, Capt. J. F. BRESNAHAN, Chicago.
To Camp Grant, Ill., Capts. O. L. HANSON, C. M. POHL, Chicago; S. F. HENRY, Effingham; Lieuts. H. L. DAY, Bluffs; W. D. CHRISMAN, Bradford; T. W. RENNIE, Chicago; T. J. FLATELY, Moline.
To Camp McClellan, Ala., Capt. A. PARSONS, Genesee; Lieuts. E. M. PRICE, Astoria; R. F. BARKER, East St. Louis; J. R. SHOLL, Peoria.
To Camp Pike, Ark., Major B. S. ROGERS, Chicago.
To Camp Sevier, S. C., Lieut. O. CARAKER, Olmstead.
To Camp Sheridan, Ala., Lieut. H. L. FISCHER, Kewanee.
To Camp Zachary Taylor, Ky., Lieut. R. F. WRIGHT, Chicago.
To Fort Oglethorpe for instruction, Capts. G. L. ALT, Chicago; C. W. BAILEY, Hebron; J. C. PAINE, Peoria; Lieuts. E. AUSTIN, Benton; C. R. BENNER, J. CRAYBEAL, G. HALPERIN, J. W. KAIL, S. MANN, I. S. SEGALL, R. E. STOBIE, Chicago; J. D. BYRNE, Du Quoin; J. C. KASSMEYER, Durand; J. C. R. WETTSTEIN, Effingham; W. B. McCLURE, Evanston; F. WOLTMAN, Kampsville; P. H. WESSEL, Moline; L. F. BOWMAN, J. J. McINTOSH, Mount Carroll; O. B. ORMSBY, Murphysboro; J. H. SPENCER, Murrayville; D. M. LITTLEJOHN, Pana; C. E. ROBB, Rock Island; O. L. EDWARDS, Roodhouse; W. H. McCANDLESS, Sterling; A. H. CLAE, Waukegan.
To Fort Riley for instruction, Lieuts. C. H. BAKER, Altamont; C. A. ROBINS, H. D. SHELDON, Chicago; E. M. MONTGOMERY, Cowden; G. C. KLEIN, Kincaid; H. A. LITTLEFIELD, Littleton; G. W. CAMPBELL, Louisville; C. M. MURRELL, Matherville; C. H. McPHERSON, Middletown; F. B. SCHROEDER, Princeton; C. M. FLEMING, Rushville; S. C. LORTON, Shumway.
To New Haven, Conn., Lieut. I. P. RICE, Chicago. Yale Army Laboratory School for instruction, Capts. E. SARGENT, Moline. C. WAKEFORD, Norris City.
To New York, Neurological Institute, for instruction, Capt. G. B. HASSIN, Chicago.

Indiana

To Camp Dodge, Iowa, as orthopedic surgeon, Capt. I. M. WASHBURN, Rensselaer.
To Camp Grant, Ill., Capts. E. A. STURM, Jasper; H. M. BOUNNELL, Waynetown.
To Camp Greene, N. C., Lieut. A. B. THOMPSON, Lake.
To Camp Jackson, S. C., base hospital, Capt. J. A. MACDONALD, Indianapolis.
To Camp Sherman, Ohio, Lieuts. C. J. BIEDENKOFF, Grand View; G. C. CONGLETON, Terre Haute.
To Fort Oglethorpe for instruction, Capts. C. C. ROBINSON, Indiana Harbor; O. S. DEITCH, Indianapolis; A. T. DAVIS, Marion; W. H. BAKER, South Bend; Lieuts. G. F. BICKNELL, Indiana Harbor; J. C. CARTER, J. L. JACKSON, H. J. LEMMON, Indianapolis; Z. M. LAUGHLIN, Linton; G. C. COULBOURN, Marion Station; J. V. KERRIGAN, Michigan City; C. J. MUNNS, Newburgh; B. F. DERR, South Bend; L. G. SPRADLEY, Tennyson; N. L. REYNOLDS, Warsaw.
To Fort Riley for instruction, Capts. D. J. CUMMINGS, Brownstown; J. W. IDDINGS, Lowell; Lieuts. J. R. CARNEY, Delphi; J. E. WIER, Evansville; W. B. RICE, J. W. THIMLAR, Fort Wayne; C. A. ENDICOTT, Frankfort; R. S. GALBRAETH, Huntington; F. W. KERN, Kurtz; J. H. HAUCK, J. S. SHAFFER, Terre Haute; E. P. FLANAGAN, Walton.
To Washington, D. C., Surgeon-General's Office, Capt. H. M. EVANS, Chattanooga.

Iowa

To Camp Abraham Eustis, Va., base hospital, Capt. E. F. LAFORCE, Burlington.
To Camp Dodge, Iowa, Capt. R. H. WOODRUFF, Charles City; Lieut. R. M. WALLACE, Titonka.
To Camp Grant, Ill., Lieut. W. H. REDMOND, Cedar Rapids.
To Camp Lee, Va., base hospital, Capt. J. G. ROBERTS, Oskaloosa.
To Fort Des Moines, Iowa, Lieut. M. C. MACKIN, Knoxville.
To Fort Oglethorpe for instruction, Capt. F. LAMBACH, Davenport; Lieuts. M. E. ANDERSON, Clinton; C. M. BRAY, Iowa Falls; M. F. JOYNT, Marcus; C. E. DAKIN, M. J. FITZPATRICK, Mason City; L. G. STUHLER, Monticello; M. S. CORLETT, Westgate.
To Fort Omaha, Neb., Lieuts. B. POWELL, Albia; J. D. SIMONS, Indianola; J. L. COLLINS, Sheffield; A. H. SCHOOLEY, Terrill.
To Fort Riley, Capts. G. H. SOLLENBARGER, Corydon; E. T. WICKHAM, Washington; Lieut. F. E. SIMERAL, Brooklyn. For instruction, Major F. L. LOVE, Iowa City; Capts. F. T. SCANLON, Clear Lake; C. T. LESAN, Mount Ayr; Lieuts. P. B. GLEW, Dallas Center; E. G. MYRICK, Fairfield; C. E. SIMPSON, Norway; B. J. VOIGT, Spencer.

Kansas

To Camp Logan, Texas, Lieut. C. N. PETTY, Altamont.
To Fort Riley, Capt. W. H. WALKER, Kansas City. For instruction, Capt. D. G. BULEY, Sedgwick; Lieuts. L. E. HENDERSON, Coyville; S. BAILEY, Garden City; I. E. HARDER, Kansas City.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. R. W. VAN DEVENTER, Wellington.

Kentucky

To Camp Greene, N. C., Capt. E. S. ALLEN, Louisville; Lieut. C. B. WITT, Big Spring.
To Camp Jackson, S. C., Lieut. J. C. HARTMAN, Turners Station.
To Camp McClellan, Ala., Lieut. J. P. SIMPSON, Auburn.
To Camp Meade, Md., Lieut. S. L. STULL, Louisville.
To Camp Pike, Ark., base hospital, Capt. C. D. MORRIS, Louisville.
To Camp Sherman, Ohio, Capt. H. C. DORROH, Ashland.
To Camp Zachary Taylor, Ky., Capt. B. J. O'CONNOR, Louisville; Lieut. E. H. MILLER, Vine Grove.
To Fort Oglethorpe for instruction, Capts. C. W. BARNES, J. A. O. BRENNAN, R. L. WOODWARD, Louisville; Lieuts. H. J. SLOCUM, Carrollton; J. W. HOLT, Eminence; H. C. BLOUNT, Leesburg; J. M. BECK, Louisville; H. P. LINN, Paducah; V. C. GILLESPIE, Wilmore; E. B. DRISKELL, Worthville.

Louisiana

To Camp Beauregard, La., base hospital, Capt. T. E. WRIGHT, Monroe; Lieut. E. S. KEITZ, New Orleans.
To Camp Logan, Texas, Capt. A. F. BARROW, St. Francisville.
To Camp MacArthur, Texas, Lieuts. H. A. ELDREDGE, Abbeville; E. K. HARRIS, Converse; E. EHLERT, Waterproof.
To Camp Sheridan, Ala., Lieut. R. P. THAXTON, Pleasant Hill.
To Fort Oglethorpe for instruction, Lieuts. C. DEAN, Bogalusa; M. J. GELPI, New Orleans.
To Leon Springs, Texas, Lieut. W. P. SINGLETARY, Wilson.

Maine

To Boston, Mass., Psychopathic Hospital, Lieut. F. E. ROWE, Augusta.
To Fort Oglethorpe for instruction, Lieuts. H. V. BICKMORE, Portland; H. W. FROHOCK, Rockland.

Maryland

To Camp A. A. Humphreys, Va., Lieut. J. L. VALENTINI, Baltimore.
To Camp Greene, N. C., Lieut. D. E. STONE, Jr., Emmitsburg.
To Camp Lee, Va., Lieut. H. J. STRICKLER, Baltimore.
To Camp Sherman, Ohio, Lieuts. F. G. COWHERD, Cumberland; F. A. CAMALIER, Leonardtown.

Massachusetts

To Camp A. A. Humphreys, Va., Capt. A. C. Eastman, Springfield; Lieut. W. E. BUCK, Wilmington.

To Camp Devens, Mass., Lieuts. S. E. RYAN, Springfield; M. J. SHEALEY, Westboro. Base hospital, Capt. F. L. EVERETT, Springfield. For instruction, Capt. F. T. CLARK, Westfield.
To Camp Gordon, Ga., Capt. F. J. McKENZIE, Springfield.
To Camp Jackson, S. C., Lieut. J. C. SULLIVAN, Webster.
To Fort Oglethorpe for instruction, Capts. F. R. ABBE, H. J. FITZSIMMONS, H. F. MacLEOD, Boston; F. J. SEXTON, Brookline; J. E. BRINDAMOUR, Holyoke; H. C. KIRBY, New Bedford; Lieuts. J. H. DEVENNY, Boston; T. J. CAHILL, Cambridge; T. B. DELANEY, Lowell; E. A. BARROWS, Plymouth; M. B. RADDING, Springfield.
To Fort Totten, N. Y., Lieut. I. W. RICHARDSON, Wakefield.
To New Haven, Conn., Yale Army Laboratory School, Capt. W. W. FULLERTON, Brockton.
To Plattsburg Barracks, N. Y., Lieut. D. F. DOWNING, Westborough.

Michigan

To Ann Arbor, Mich., State Psychopathic Hospital, Capt. P. J. DePREE, Grand Rapids.
To Camp Dodge, Iowa, base hospital, Capt. H. T. WHITE, New Lathrop.
To Camp Sherman, Ohio, Lieut. J. F. CROFTON, St. Joseph.
To Fort Oglethorpe for instruction, Capts. F. B. MINER, Flint; I. BOWDEN, Port Huron; J. B. CAMPBELL, Stanwood; Lieuts H. P. POSTON, Detroit; J. H. HOUTON, Flint; E. W. DALES, H. J. PYLE, Grand Rapids.
To Fort Riley for instruction, Lieuts. F. M. HUNTLEY, Lansing; C. J. DURHAM, Muskegon; R. HENDERSON, Niles.
To Fort Wayne, Mich., Lieuts. W. F. COURIE, Detroit; E. D. HUNDERMAN, Grand Rapids.

Minnesota

To Camp Dodge, Iowa, base hospital, Capt. G. J. TWEEDY, Winona.
To Camp Lee, Va., base hospital, Capt. E. J. HORGAN, Rochester.
To Fort Oglethorpe for instruction, Lieuts. E. S. O'HARE, Milroy; H. D. NEWKIRK, E. OBERG, Minneapolis.
To Fort Riley for instruction, Capt. A. C. TANNER, Minneapolis.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. L. BAKER, Minneapolis.

Mississippi

To Camp MacArthur, Texas, Capt. C. P. MOSBY, Meridian; Lieut. L. J. COPPEDGE, Rosedale.
To Camp McClellan, Ala., Lieut. J. P. KENNEDY, Greenwood.
To Camp Sheridan, Ala., Lieuts. E. E. SHIVERS, Boyle; J. WELCH, Collins; R. R. WELCH, Kola; H. P. HOPPER, Sancier.
To Fort McPherson, Ga., Lieut. W. W. MERRITT, Fondren.
To Fort Oglethorpe for instruction, Lieuts. W. G. BERRY, Jackson; J. S. MOORE, Magnolia.
To Fort Riley for instruction, Lieut. L. H. SENTEFF, State Line.

Missouri

To Camp Custer, Mich., Capt. J. C. LYTER, St. Louis.
To Camp Dodge, Iowa, Capt. R. E. CASTELAW, Kansas City.
To Camp Jackson, S. C., Lieut. J. P. BURKE, Jr., California.
To Camp MacArthur, Texas., Lieut. R. H. BURNEY, Kansas City.
To Camp Travis, Texas, base hospital, Capt. A. W. GIFFORD, Springfield.
To Fort Oglethorpe for instruction, Capts. B. G. BENSON, D. B. GARSTANG, G. W. KOENIG, St. Louis; J. A. SWEARINGEN, Wyaconda; Lieuts. J. T. McLARNEY, Brookfield; J. H. WILLIAMS, Hume; E. D. TWYMAN, Independence; A. L. HEARST, H. F. VANORDEN, J. E. WATTENBERG, Kansas City; L. I. SHUCK, Nelson; B. F. MAY, St. Louis.
To Fort Omaha, Neb., Lieut. H. C. KIMBERLIN, Trenton.
To Fort Riley for instruction, Capts. A. J. McNEES, Clinton; H. A. BREYFOGLE, H. H. LANE, Kansas City; T. J. RAGSDALE, Lee's Summit; E. BARRYMORE, Silex; E. W. EBERLEIN, St. Louis; Lieuts. W. C. ANDERSON, A. G. KOCH, Kansas City.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. F. COHEN, Kansas City.

Montana

To Camp Lewis, Wash., Capt. J. M. SCANLAND, Warm Springs.
To Camp Sherman, Ohio, Lieut. H. J. McGREGOR, Choteau.
To Fort Omaha, Neb., Lieut. P. A. SCHULBERG, Rudyard.
To Fort Riley for instruction, Capt. J. I. WERNHAM; Lieuts. J. D. BARRETT, Billings; F. E. ABBOTT, Broadview; C. W. BICE, Great Falls; T. L. COCKRELL, Hindale.
To Helena, Mont., as medical aide, Capt. E. G. BALSUM, Billings.
To report to the commanding officer, Western Department, Lieut. E. F. ROSS, Harlowton.

Nebraska

To Fort Oglethorpe for instruction, Capt. L. RILEY, Wisner; Lieut. J. J. SRB, Dwight.
To Fort Omaha, Neb., Lieut. L. C. HILSABECK, Gretna.

New Hampshire

To Fort Oglethorpe for instruction, Capt. C. B. COTTON, Wolcboro; Lieut. M. H. TOWLE, Manchester.

New Jersey

To Camp A. A. Humphreys, Va., camp hospital, Capt. J. M. JONES, Jersey City.
To Camp Colt, Pa., Lieut. F. L. BIRD, Netcong.
To Camp Jackson, S. C., Lieuts. C. H. CANNING, Atlantic City; E. J. CHAPMAN, Jersey City.
To Camp Meade, Md., Capt. G. W. LAWRENCE, Lakewood.
To Camp Upton, N. Y., base hospital, Lieut. C. TEN BROECK, Princeton.
To Fort Oglethorpe for instruction, Capts. E. ACKERMANN, Dover; G. S. WILLIS, Morristown; C. W. EVELETH, West Orange; Lieuts. W. P. DAVIS, Jr., Atlantic City; R. W. RANDALL, Hackettstown; M. AURIEMMA, Hoboken; P. BRANCATO, C. B. RUSSELL, F. J. T. WAS, Paterson; W. H. McCORMICK, Jr., Perth Amboy; H. H. BOWLES, Summit; J. M. MacKELLAR, Tenafly; P. A. D'ACIERENO, West Hoboken.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. W. F. CIMIOTTI, West Hoboken.
To report to the commanding officer, Eastern Department, Lieut. A. STAHL, Newark.
To Washington, D. C., St. Elizabeth's Hospital, Capt. D. E. WARREN, Passaic; Lieut. E. H. SNAVELY, Cedar Grove.

New Mexico

To Leon Springs, Texas, Lieut. J. H. SANFORD, Socorro.

New York

To Camp A. A. Humphreys, Va., Capts. G. L. BRANCH, Catskill; T. F. DeNAOULEY, New York; Lieuts. R. F. BLISS, Brooklyn; A. GOLDBERG, Rockaway Beach. Camp hospital, Capt. A. A. EPSTEIN, New York.
To Camp Devens, Mass., base hospital, Capt. F. W. SEYMOUR, Rochester; Lieuts. E. F. WALSH, R. H. WHITCHER, New York.
To Camp Dix, N. J., Lieut. R. O. BAKER, Montour Falls. Base hospital, Lieut. S. B. DOYLE, Brooklyn.
To Camp Gordon, Ga., base hospital, Lieut. W. J. McNERNEY, Syracuse.
To Camp Greene, N. C., base hospital, Capt. I. H. ALEXANDER, New York.
To Camp Jackson, S. C., Lieut. C. W. JOHNSON, Mount Vernon.
To Camp Meade, Md., Capts. F. M. BOYLE, Buffalo; J. S. WILSON, Poughkeepsie; Lieuts. E. E. BABCOCK, Adams Center; W. W. HALL, Henderson.
To Camp Sevier, S. C., Capt. J. G. MORRIS, Groveland Station.
To Camp Shelby, Miss., base hospital, Lieut H. D. MANLEY, New York.
To Camp Sherman, Ohio, Lieut. J. R. FOSHAY, Peekskill.
To Camp Wadsworth, S. C., Capt. B. P. ALLEN, Oriskany; Lieuts. E. A. DAWSON, Brooklyn; H. T. CRONK, New York.
To Columbia, S. C., base hospital, Lieut. H. R. MIXSELL, New York.
To Edgewood, Md., Lieut. J. M. HALL, New York.
To Fort Oglethorpe for instruction, Major F. T. ROBESON, New York; Capts. C. A. LUBRECHT, Brooklyn; L. HENDEE, Buffalo; A. MARK, Elmira; M. L. HAVILAND, Glens Falls; H. E. MERRIAM, Ithaca; F. A. WICKER, Livonia; J. J. SINNOTT, Mount Vernon; E. C. THOMPSON, Newburgh; T. FARNAM, New York; M. I. STEARNS, Ogdensburg; T. F. FOREMAN, J. H. KEVAND, A. S. RULAND, Syracuse; Lieuts. E. R. RICHIE, Brewster; H. C. FUHRMAN, A. E. GILMARTIN, B. GROSS, W. J. DURKIN, O. J. RUZICKA, E. G. SILVERMAN, M. R. SIUDZINSKI, Brooklyn; R. P. HIGGINS, Cortland; G. M. GLENN, Fonda; F. J. LEONARD, Ilion; S. BRODY, H. M. COX, A. EISENBUD, S. EPSTEIN, C. GLUCK, I. MILLER, M. SOLETSKY, M. B. SPONSLER, W. H. STANDER, New York; F. A. TREIBER, Port Jarvis; G. H. CLARK, E. B. COOK, J. G. HART, Rochester; C. L. SCHLOSSOR, Syracuse; H. W. JONES, Utica; E. R. GLADSTONE, Walton.
To Fort Porter, N. Y., Capt. A. J. CAPRON, Oswego.
To Fort Totten, N. Y., Lieut. H. KLARFELD, New York.
To Lakehurst, N. J., Lieut. J. BLINDER, Brooklyn.
To Lakewood, N. J., Lieut. L. FRISCHMAN, Yonkers.
To New Haven, Conn., Lieut. C. M. MANN, Petersburg. Yale Army Laboratory School, for instruction, Capts. H. GREELEY, Brooklyn; E. MOSCHCOWITZ, New York; W. H. VEEDER, Rochester; Lieut. J. H. GLOBUS, New York.
To Plattsburg Barracks, N. Y., Capt. D. S. SPELLMAN, Ward's Island; Lieuts. J. E. BURKE, Schenectady; P. M. CHAMPLIN, Syracuse.
To report to the commanding officer, Eastern Department, Capt. E. E. WILSON, Lieut. S. G. BLUM, Brooklyn.
To Rockefeller Institute, Lieut. E. G. STILLMAN, New York.
To Washington, D. C., St. Elizabeth's Hospital, Lieut. T. J. VOSBURGH, Warwick.

North Carolina

To Camp Greene, N. C., Capt. F. A. CARPENTER, Statesville; Lieuts. C. M. BYMUN, Goldston; J. B. HAGAMAN, Todd.
To Camp Sevier, S. C., Lieut. S. S. IRVIN, Vanceboro.
To Camp Wadsworth, S. C., base hospital, Lieut. M. H. BRAWLEY, Salisbury.
To Fort Oglethorpe for instruction, Lieuts. F. B. SPENCER, Salisbury; T. C. KERNS, West Durham.
To New York, Neurological Institute, for instruction, Capt. N. D. BITTING, Durham.

North Dakota

To Fort Oglethorpe for instruction, Lieut. J. P. MILLER, Mandan.
To Fort Riley for instruction, Capt. D. A. FISK, Carpio.

Ohio

To Camp A. A. Humphreys, Va., Lieut. W. E. BLAIR, Lebanon.
To Camp Custer, Mich., Capt. G. W. WOODS, Columbus; Lieuts. F. M. OXLEY, Cincinnati; E. F. BRANDON, Edon. Base hospital, Capt. W. A. GOING, Toledo.
To Camp Dix, N. J., Lieut. E. S. FOLK, Canton.
To Camp Grant, Ill., Lieuts. D. THOMAS, Lorain; R. A. DALBEY, Youngstown.
To Camp Greene, N. C., Lieuts. A. M. DUNLAP, Cleveland; I. S. WILLIAMS, Massillon; H. H. AUSTIN, Springfield; A. P. SMYTH, Youngstown.
To Camp Jackson, S. C., Lieut. H. S. RHU, Marion. Base hospital, Capt. E. H. PORTER, Tiffin.
To Camp Meade, Md., Lieuts. W. G. STINCHCOMB, Bellefontaine; J. R. PARRY, Lima.
To Camp Sevier, S. C., Lieuts. L. F. MUTSCHMAN, Alliance; F. E. SEXTON, Cleveland; J. J. HEATON, McCutchenville; B. L. CASEY, Toronto; O. D. CRITCHFIELD, West Unity.
To Camp Sherman, Ohio, Lieuts. W. C. LANGDON, Cincinnati; J. B. POLING, Lima; F. E. MAHLA, Marion; I. D. BAXTER, Spencerville. Base hospital, Lieut. S. S. QUITTNER, Cleveland.
To Camp Zachary Taylor, Ky., Lieuts. C. E. EXLINE, Canton; R. H. FIRTH, Dayton.
To Fort Oglethorpe for instruction, Capts. G. F. McKIM, Cincinnati; C. E. Welch, Nelsonville; L. A. LEVISON, Toledo; E. M. BROWN, Zanesville; Lieuts. G. P. RIEBEL, Ashland; H. A. MARCH, Canton; D. W. PALMER, H. M. SCHNEIDER, Cincinnati; E. V. BISHOP, H. A. BUDD, E. D. ROSEWATER, Cleveland; J. M. BOWMAN, J. G. SHERMAN, H. R. WRIGHT, Columbus; W. H. SWISHER, Dayton; G. HARTNAGEL, Delphos; W. R. CRUME, Gratis; D. C. FOX, Kenton; G. W. PULLEN, Jr., Lakewood; R. M. BLAIR, Lebanon; E. B. SCHNEIDER, Norwood; E. A. YATES, Piqua; S. L. ZURMEHLY, Rushsylvania; J. S. TETER, Toledo; J. S. SHINN, Troy; L. W. POTTS, Warrensville.

To New Haven, Conn., for instruction, Lieut. H. J. POWELL, Bowling Green. Yale Army Laboratory School, for instruction, Lieut. F. W. RILEY, Akron.

To report to the commanding officer, Eastern Department, Lieut. F. F. BARGER, Urbana.

Oklahoma

To Camp Logan, Texas, Capt. D. M. LAWSON, Nowata; Lieut. H. J. WEEDN, Sasakwa.

To Camp MacArthur, Texas, Capt. A. T. HILL, Tamaha; Lieuts. J. T. MORELAND, Idabel; W. A. SIBLEY, Tar River; A. W. PIGFORD, Tulsa; E. B. THOMASSON, Velma.

To Fort Oglethorpe for instruction, Lieut. R. E. WAGGONER, Pawnee.

To Fort Riley for instruction, Capt. H. M. STRICKLEN, Tonkawa; Lieuts. L. H. RITZHAUPT, Guthrie; J. N. HARBER, Mekusukey.

Oregon

To Camp Lewis, Wash., Lieuts. B. BLACKFORD, A. K. HIGGS, Portland.

Pennsylvania

To Camp Colt, Pa., Capt. O. T. CRUIKSHANK, Pittsburgh.

To Camp Dix, N. J., Capts. F. C. DUVALL, Monessen; L. C. FULTON, W. J. LAND, Pittsburgh.

To Camp Jackson, S. C., Lieut. S. M. WINTER, Duryea.

To Camp Meade, Md., Lieut. P. K. HELLER, Dixmont. Base hospital, Capts. W. B. KENWORTHEY, Milford; A. J. WAGERS, Lieut. W. J. CREIGHTON, Philadelphia.

To Camp Sevier, S. C., Capt. W. C. WILSON, Morris Run; Lieuts. R. G. FURLONG, Donora; W. H. HUBER, Glenside.

To Camp Wadsworth, S. C., Lieuts. S. S. JORDAN, McKeesport; R. M. JOHNSTON, New Kensington; L. F. KROH, Rural Valley.

To Camp Zachary Taylor, Ky., Capt. J. S. DEMUTH, Pittsburgh.

To Fort Bliss, Texas, base hospital, Capt. J. W. McKENNAN, Washington.

To Fort Oglethorpe for instruction, Capts. E. M. COWELL, Athens; W. A. McCALL, Butler; W. O. WILSON, Clearfield; J. L. IRELAND, Erie; L. C. SMITH, Lawrenceville; H. H. BIRNEY, C. E. TEGTMEIR, Philadelphia; F. C. S. BLESSING, A. J. HESSER, Pittsburgh; J. B. ROGERS, Pottsville; J. H. RORKE, Reading; C. FALKOWSKY, Jr., Scranton; Lieuts. W. E. LOFTUS, Carbondale; C. W. JOHNSTONE, DuBois; J. L. McBRIDE, Emsworth; R. S. HINCHMAN, McKeesport; R. GOODMAN, L. H. JACOB, J. D. SCHOFIELD, A. STRAUSS, Philadelphia; A. W. BARKLEY, J. E. FLINN, H. M. GANGLOFF, H. C. HIEBER, Pittsburgh; S. L. DRIEBELBIS, Reading; W. M. YOST, Rochester; J. B. MILLER, Sligo; B. W. GENUNG, Ulysses; A. J. SLAGLE, Vandergrift; D. A. RUPERT, Webster.

To Fort Totten, N. Y., Lieut. S. GOLDBERG, McKeesport.

To Pittsburgh, Pa., Lieut. C. J. BOWEN, Pittsburgh.

To Plattsburg Barracks, N. Y., Majors T. H. WEISENBURG, Philadelphia; C. H. HENNINGER, Pittsburgh.

To report to the commanding general, Hoboken, N. J., Lieut. H. S. WEIGLE, Muncy.

To Washington, D. C., St. Elizabeth's Hospital, Lieuts. C. A. KOENIG, C. A. LEY, Pittsburgh.

Rhode Island

To Camp Devens, Mass., Lieut. C. H. GANNON, Howard.

To Camp Dix, N. J., Capt. F. R. JENKS, Lieut. J. V. CHATIGNY, Pawtucket.

To Camp Jackson, S. C., Lieut. H. C. MESSINGER, Providence.

To Camp Meade, Md., base hospital, Lieut. J. E. McCABE, Providence.

To Camp Wadsworth, S. C., Lieut. C. B. O'ROURKE, Providence.

To Fort Oglethorpe for instruction, Lieut. P. H. RUSHTON, Providence.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. G. PALMER, Providence.

South Carolina

To Camp Jackson, S. C., Lieut. W. R. WYNNE, Charleston. Base Hospital, Capt. W. WESTON, Jr., Columbia.

To Camp Sevier, S. C., base hospital, Lieut. W. E. MILLS, Sumter.

To Camp Wadsworth, S. C., base hospital, Lieut. S. C. DEAN, Anderson.

To Fort Oglethorpe for instruction, Capt. H. W. DE SAUSSURE, Charleston.

South Dakota

To Fort Oglethorpe for instruction, Lieut. H. H. CORNFORTH, Hot Springs.

To Fort Riley for instruction, Lieut. A. A. SORENSEN, Aberdeen.

Tennessee

To Camp Jackson, S. C., Lieut. W. B. EASON, Bells.

To Camp MacArthur, Texas, Lieut. H. P. RIEGER, Nashville.

To Camp McClellan, Ala., Lieut. R. WEBB, St. Bethlehem.

To Camp Sevier, S. C., Lieut. J. F. GOFF, Chesterfield.

To Camp Sheridan, Ala., Lieut. A. J. GUINN, Ducktown.

To Fort Oglethorpe for instruction, Capts. D. GERMAN, Franklin; J. A. HARDISON, Lewisburg; Lieuts. H. L. CARROLL, Knoxville; J. D. CARLTON, Union City.

To Fort Riley for instruction, Lieut. L. C. HARRIS, Mockeson.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. F. LAKE, Chattanooga.

Texas

To Camp John Wise, Texas, Lieut. J. H. BARNETT, Walnut Springs.

To Camp Logan, Texas, Capts. J. W. GERMANY, Ennis; T. B. ASKOW, San Antonio; C. M. MACNELLY, Weatherford; J. H. THOMAS, West; Lieuts. J. K. WEBSTER, Athens; G. L. EADS, Marshall; E. O. NICHOLS, Plainview; S. I. STURGES, Springtown.

To Camp MacArthur, Texas, Capts. W. H. MACKEY, Fort Worth; O. R. MARSHALL, Moody; Lieuts. F. H. KLIEFETH, Blanco; E. G. SMITH, Gatesville; R. A. DUNCAN, Graham; W. J. MASTERS, Knox City; H. A. WINTER, Port Arthur. Base hospital, Major H. B. JESTER, Corsicana.

To Camp Travis, Texas, base hospital, Capt. F. W. SORELL, San Antonio.

To Canal Zone, Lieut. T. T. PARKER, San Antonio.

To Dallas, Texas, Love Field, Lieuts. F. E. STONE, Paducah; J. A. McCONNELL, Poolville.

To Fort Oglethorpe for instruction, Capt. J. VANCE, El Paso; Lieuts. L. SCHELLER, Beaumont; L. F. BLAND, R. H. MILLWEE, Dallas; M. B. BADT, Fort Worth; R. C. WHIDDON, Gainesville.

To Leon Springs, Texas, Lieuts. T. H. BLACKWELL, Dickens; A. C. SURMANN, Post.

Utah

To Camp Kearney, Calif., Lieut. C. F. SWANSON, Milford.

To Camp Pike, Ark., Lieut. G. H. CHRISTY, Vernal.

To Fort Oglethorpe for instruction, Lieut. H. R. HATCH, Heber.

To Fort Riley for instruction, Lieut. H. FINCH, Park City.

Vermont

To Fort Oglethorpe for instruction, Lieut. W. H. CLANCY, Burlington.

Virginia

To Camp Greene, N. C., Lieuts. H. S. HENKEL, Brownsburg; J. J. CRUMM, Louisa; C. B. FOX, Monterey.

To Camp Lee, Va., Lieut. J. B. MUNCY, Richmond.

To Camp Meade, Md., Capt. T. A. KIRK, Roanoke.

To Camp Sevier, S. C., Lieut. S. R. JORDAN, Virgilina.

To Camp Sherman, Ohio, for instruction, Lieut. W. A. McGOWAN, Richmond.

To Fort Oglethorpe for instruction, Capts. W. H. SAUNDERS, Roanoke; P. W. BOYD, Winchester; Lieuts. W. S. FERGUSON, Lynchburg; J. L. GRANT, Midland; J. H. MABRY, Newport News; R. W. STONEBURNER, Toms Brook.

Washington

To Camp Lewis, Wash., Capt. G. A. DAVIS, Redmond. Base hospital, Capts. E. C. LEE, Seattle; F. R. FURSEY, Spokane; Lieut. J. W. MITCHELL, Seattle.

To Fort Riley for instruction, Lieut. E. M. BEVIS, Republic.

To New York, Neurological Institute, Lieut. L. R. QUILLIAM, Seattle.

To San Francisco, Calif., Lieut. J. H. EGAN, Tacoma.

West Virginia

To Camp Greene, N. C., Lieut. R. K. BRAGONIER, Shepherdstown.

To Camp Meade, Md., Lieut. J. A. STRIEBICH, Moundsville. Base hospital, Capt. S. H. PHILLIPS, Charleston.

To Camp Sherman, Ohio, base hospital, Lieut. I. FAWCETT, Wheeling.

To Fort Oglethorpe for instruction, Capt. W. L. VAN SANT, Hinton; Lieut. F. E. MARTIN, New Martinsville.

Wisconsin

To Fort Oglethorpe for instruction, Capt. O. H. FOERSTER, Milwaukee; Lieuts. F. L. GRISWOLD, Mazomaine; J. H. CARROLL, Milwaukee; W. C. COMEE, Seymour.

To Fort Riley for instruction, Capt. M. A. BAILEY, Fennimore; Lieuts. J. M. ROSS, Bloom City; F. H. BALDWIN, Bloomington; W. J. WALDSCHMIDT, Fond du Lac; R. R. RATH, Granton; R. C. GODFREY, Lancaster; R. C. WESTHOFEN, Milwaukee; G. A. NATVIG, Prairie Farm; G. W. CURLESS, Walworth.

Wyoming

To Fort Riley for instruction, Lieut. W. H. HASSED, Lusk.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Beauregard, La., from Camp Forrest, Lieut. H. BOXER, Birmingham.

To Camp Crane, Pa., from Camp Sheridan, Lieut. H. F. McLAURINE, Fitzpatrick.

To Camp Greene, N. C., base hospital, from Camp McClellan, Lieut. C. D. MYERS, Birmingham.

To Camp Upton, N. Y., base hospital, from Fort McPherson, Lieut. E. C. SINIARD, Birmingham.

To Fort Oglethorpe for instruction, Lieut. J. A. USSERY, Courtland.

Arizona

To Camp Custer, Mich., base hospital, from Camp Travis, Capt. V. A. SMELKER, Nogales.

To Camp Logan, Texas, from Fort Riley, Lieut. R. E. POOLE, Mayer.

To Denver, Colo., from New Haven, Lieut. E. J. RICHSTEIN, Bisbee.

To Fort Snelling, Minn., base hospital, from Camp Fremont, Lieut. W. O. SWEEK, Phoenix.

Arkansas

To Camp Crane, Pa., from Camp Fremont, Lieut. T. W. SANDERS, Hot Springs.

To Camp Logan, Texas, from Fort Riley, Lieut. C. V. POWELL, Round Pond.

To Camp Newton D. Baker, Texas, base hospital, from Camp MacArthur, Capt. O. J. T. JOHNSTON, Batesville.

To Fort Benjamin Harrison, base hospital, from Camp Pike, Major F. VINSONHALER, Little Rock.

To New Haven, Conn., from Camp Jackson, Capt. E. E. HOLT, Mena.

California

To Camp Crane, Pa., from Army Medical School, Lieut. T. L. ROGERS, Long Beach; from Camp Fremont, Lieuts. A. L. COHN, W. E. KAY, Jr., San Francisco; from Camp Lewis, Capt. H. K. FABER, San Francisco; from New Haven, Lieut. M. B. WOLFF, San Francisco.

To Camp Greene, N. C., base hospital, from Camp Bowie, Capt. J. L. LOHSE, Oakland.

To Camp Kearney, Calif., Lieuts. F. E. McCANN, Corning; W. W. TOURTILLOTT, Lindsay; J. A. McKENNEY, Parlier; from Fort Riley, Capts. R. MOTHERAL, Hanford; M. CAMPBELL, Los Angeles; L. GRAHAM, Wagner; Lieuts. M. CLEEVES, S. A. MARSDEN, Los Angeles. Base hospital, Capt. P. A. JORDAN, San Jose; and for instruction, Capt. S. M. MILLER, Los Angeles.

To Camp Logan, Texas, from Fort Riley, Lieut. E. R. HARVEY, Long Beach.
To Camp Sherman, Ohio, base hospital, from Camp Jackson, Capt. J. EAVES, San Francisco.
To Camp Upton, N. Y., from Camp Kearney, Major R. B. WILLIAMS, San Francisco.
To Fort Douglas, Utah, from Camp Lewis, Capt. W. B. DEAS, San Francisco.
To Fort Oglethorpe, evacuation hospital, from San Francisco, Major P. M. THOMAS, San Francisco. For instruction, from Fort Riley, Lieut. F. C. SWEARINGEN, Pomona.

Canal Zone

To Newport News, Va., from Fort Oglethorpe, Lieut. W. C. GIBSON, Pedro Miguel.

Colorado

To Azalea, N. C., from New Haven, Capt. S. SIMON, Denver.
To Camp Kearney, Calif., from Fort Riley, Capts. H. J. HOLLISON, Denver; B. B. BLOTZ, Rocky Ford.
To Camp Sherman, Ohio, base hospital, from Camp Wadsworth, Capt. L. H. McKINNIE, Colorado Springs.
To Denver, Colo., from New Haven, Capt. M. J. KEENEY, Pueblo.
To Walter Reed General Hospital, D. C., Lieut. J. F. WILLIAMS, La Junta.

Connecticut

To Camp McClellan, Ala., as tuberculosis examiner, from Camp Jackson, Lieut. T. P. MURDOCK, Meriden.
To Camp Sevier, S. C., as tuberculosis examiner, from Camp Jackson, Lieut. M. C. BECK, Bridgeport.
To Camp Upton, N. Y., base hospital, from Walter Reed General Hospital, Lieut. S. MAISLEN, Hartford.
Honorably discharged, on account of physical disability existing prior to entrance into the service, Capt. W. H. GRAY, Mystic.

District of Columbia

To Camp Crane, Pa., from Camp Jackson, Lieut. S. R. KARPELES, Washington.
To Fort Benjamin Harrison, base hospital, from Camp Custer, Capt. H. L. SCHURMEIER, Washington.
To Rockfeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.,* base hospital, from Washington, Major R. Y. SULLIVAN, Washington.

Florida

To Lakewood, N. J., for instruction, Lieut. A. J. WOOD, St. Petersburg.

Georgia

To Camp Crane, Pa., from Fort McPherson, Major W. A. CHAPMAN, Cedartown.
To Camp Joseph E. Johnston, Fla., Capt. H. RESPESS, Mason; Lieuts. C. G. HOOTEN, Bronwood; W. A. HARRISON, Sycamore.
To Camp Meade, Md., evacuation hospital, Capt. J. H. BUTLER, Augusta.
To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. F. J. GIUFFRIDA, Atlanta.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieuts. T. B. WILSON, Brunswick; S. T. R. REVELL, Louisville.
To Fort Oglethorpe, evacuation hospital, from Camp Sheridan, Capt. W. R. DANCY, Savannah.
To Lakewood, N. J., for instruction, and on completion *to his proper station,* from Camp Wadsworth, Major J. W. DANIEL, Savannah.

Illinois

To Camp A. A. Humphreys, Va., Lieut. F. E. SENEAR, Chicago.
To Camp Crane, Pa., from Army Medical School, Lieut. H. E. LUTYENS, Farmingdale; from Camp Custer, Capt. E. L. HENDRICKS, Lanark; from Camp Dix, Lieut. H. L. SCHULTZ, Decatur; from Camp Grant, Lieuts. L. C. BASSETT, Farina; A. A. MERT, Pawnee; from Camp Sheridan, Capt. F. C. WALSH, Rock Island; from Camp Wheeler, Lieut. J. H. EDGCOMB, Ottawa.
To Camp Knox, Ky., from Fort Oglethorpe, Lieut. G. D. BRAND, Chicago.
To Camp Newton D. Baker, Texas, base hospital, from Camp Bowie, Lieut. J. F. BOONE, Chicago.
To Camp Sevier, S. C., from Lakewood, N. J., Lieuts. C. J. McMULLEN, E. F. MIELKE, Chicago.
To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. T. G. CHARLES, Beardstown; from Fort Oglethorpe, Capt. W. W. VAN WORMER, Springfield.
To Camp Zachary Taylor, Ky., base hospital, from Camp Dodge, Major W. G. ALEXANDER, Evanston.
To Denver, Colo., from New Haven, Capt. H. C. MILLER, Chicago; Lieuts. E. LEVY, Chicago; V. MAURICAN, Rockton.
To Fairfield, Ohio, Wilbur Wright Field, from Middletown, Pa., Capt. C. L. MONTGOMERY, Blue Mound.
To Fort Benjamin Harrison, base hospital, from Camp Dodge, Lieut. M. S. COFFLER, Chicago.
To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. J. M. WASHBURN, Chicago. For instruction, Lieut. H. C. FORTUNE, Rochester.
To Fort Riley to examine the command for nervous and mental diseases, from Jefferson Barracks, Capt. E. Z. LEVITIN, Peoria.
To Fort Snelling, Minn., base hospital, from Camp Grant, Lieut. A. S. SANDLER, Chicago.
To Fort Thomas, Ky., from Lakewood, N. J., Lieut. G. H. ANDERSON, Chicago.
To Jefferson Barracks, La., to examine the command for nervous and mental diseases, from Camp Sheridan, Capt. W. K. DYER, Kankakee.
To Lakewood, N. J., for instruction, Lieut. E. S. MELOY, Highland.
To Newport News, Va., from Camp Dodge, Capt. L. W. ROSENBAUM, Chicago.
To Washington, D. C., for consultation, and on completion *to Fort Oglethorpe,* as instructor, from Fort Riley, Capt. E. W. RYERSON, Chicago.
To Waynesville, N. C., from New Haven, Capt. A. R. TRAPP, Springfield.

Indiana

To Camp Crane, Pa., from Camp Grant, Lieuts. V. GORDON, Blountsville; J. F. SWAYNE, Mecca; from Camp Hancock, Capt. C. C. DUBOIS, Warsaw; from Camp Sevier, Lieut. E. G. WINTER, Indianapolis; from Camp Wadsworth, Lieut. C. H. BRUNER, Greenfield; from Fort Omaha, Capt. B. W. RHAMY, Fort Wayne.
To Camp Grant, Ill., from Fort Oglethorpe, Capts. J. W. BENHAM, Columbus; J. T. McFARLIN, Williams.
To Camp Greene, N. C., base hospital, from Camp Beauregard, Lieut. H. L. COOPER, South Bend.
To Camp Hancock, Ga., base hospital, from Camp Beauregard, Lieut. H. H. JONES, Salamonia.
To Camp Kearney, Calif., from Fort Riley Lieuts. E. C. GRAY, Greensburg; H. S. BOWLES, Muncie.
To Camp Knox, Ky., from Fort Oglethorpe, Lieut. E. E. BROCK, Anderson.
To Camp Lee, Va., from Fort Oglethorpe, Lieut. C. C. MARSHALL, Aurora.
To Fort Benjamin Harrison, base hospital, from Camp Travis, Capt. H. ELLIOTT, Brazil.
To Hoboken, N. J., base hospital, from Camp Custer, Capt. J. C. GLACKMAN, Hatfield.
To Lakewood, N. J., for instruction, Lieut. G. N. DRULEY, North Webster.

Iowa

To Camp Greene, N. C., from Camp Meade, Lieut. G. H. STEELE, Belmond. Base hospital, from Camp Bowie, Capt. P. E. SAWYER, Sioux City.
To Camp Hancock, Ga., base hospital, from Camp Shelby, Capt. C. A. KATHERMAN, Sioux City.
To Camp Kearney, Calif., from Fort Riley, Capt. H. M. HOAG, Mason City.
To Camp Logan, Texas, from Fort Riley, Capt. A. M. SHERMAN, Clarinda; Lieut. F. H. DIERKER, West Point.
To Camp Newton D. Baker, Texas, base hospital, from Camp Bowie, Lieut. W. C. HAND, Hartley.
To Fort Benjamin Harrison, base hospital, from Camp Cody, Capt. E. L. ROHLF, Waterloo.
To Lakewood, N. J., for instruction, Lieut. J. B. KNIPE, Armstrong.
To Waynesville, N. C., from New Haven, Capt. S. C. BUCK, Grinnell.

Kansas

To Camp Crane, Pa., from New York, Lieut. E. H. SCHLEGEL, Wichita.
To Camp Grant, Ill., from Fort Oglethorpe, Lieut. L. J. PIERCE, Englewood.
To Camp Kearney, Calif., from Fort Riley, Capt. W. DOSTER, Coldwater.
To Camp Logan, Texas, from Fort Riley, Capt. C. L. RANDALL, Neodesha.
To Camp Newton D. Baker, Texas, base hospital, from Camp Bowie, Lieut. R. S. PICKLER, Beloit.
To Denver, Colo., from New Haven, Lieut. C. F. ENSIGN, Lawrence.
To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieut. A. J. O'LEARY, Burr Oak; from Fort Logan H. Roots, Capt. M. HAHN, Arkansas City.
To Fort Riley for instruction, Lieut. H. W. GOOTEE, Topeka.
To Jefferson Barracks, Mo., Lieut. D. C. DODDS, Summerfield; from Fort Logan H. Roots, Lieut. A. B. OECHSLI, Stockton.
To Newport News, Va., from Fort Oglethorpe, Capt. J. W. CHENEY, Wichita.

Kentucky

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. G. G. HUNTER, Covington.
To Camp Pike, Ark., from Camp Bowie, Major G. H. DAY, Louisville.
To Camp Zachary Taylor, Ky., Capt. H. A. DAVIDSON, Louisville.
To Fort Sam Houston, Texas, base hospital, from Camp Hancock, Lieut. Z. G. JONES, Bowling Green.
To Newport News, Va., Lieut. W. LAKE, Simmons.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capts. D. H. DANIEL, Paintsville; A. H. KELLY, Shively.
The following order has been revoked: *To Camp Dodge, Iowa,* base hospital, Lieut. J. E. WILSON, Butler.

Louisiana

To Camp Lee, Va., from Fort Oglethorpe, Lieut. P. T. THIBODAUX, Donaldsonville.
To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieuts. D. B. DAVIS, Bunkie; W. H. HAMLEY, Lake Providence; G. B. DICKSON, Shreveport.

Maine

To Astoria, New York, from Fort Oglethorpe, Lieut. E. G. A. STETSON, Brunswick.

Massachusetts

To Camp A. A. Humphreys, Va., Capt. G. G. SMITH, Boston.
To Camp Crane, Pa., from Camp Devens, Capts. R. H. VOSE, Boston; W. J. HARKINS, Quincy; from Camp Dix, Lieut. N. B. McWILLIAMS, Williamstown.
To Camp Dix, N. J., base hospital, from Lakewood, Lieut. F. C. HALL, Boston.
To Camp Greene, N. C., base hospital, from Camp Sheridan, Lieut. A. H. GALVIN, Springfield.
To Camp Lee, Va., from Fort Oglethorpe, Capt. J. W. CLARKE, Attleboro.
To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. A. E. ST. CLAIR, Framingham. As tuberculosis examiner, from New Haven, Lieut. N. J. HEYWOOD, Williamsett.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. F. L. GIBSON, Holyoke.
To Camp Upton, N. Y., base hospital, from Fort McPherson, Lieut. J. M. LYNCH, Boston.
To Fort McHenry, Md., from Camp Lee, Capt. A. M. DODGE, Boston.
To Fort Oglethorpe, evacuation hospital, from Camp Wadsworth, Lieut. R. H. PHILBRICK, East Northfield. For instruction, Lieuts. J. L. DOWLING, L. STRAHLMANN, Boston.

To Mineola, N. Y., Hazelhurst Field, from Cambridge, Major C. S. BUTLER, Boston.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. PARKER, Jr., Bedford; from Rockefeller Institute, Lieut. G. L. BUNNELL, Foxboro.
To New York, Neurological Institute, for instruction, Lieut. S. COBB, Cotuit.

Michigan

To Camp Sherman, Ohio, base hospital, from Camp Lee, Lieut. L. O. SHAW, Detroit.
To Camp Zachary Taylor, Ky., Lieut. M. C. HUBBARD, Vestaburg.
To Columbia, Ohio, from Columbus Barracks, Capt. B. F. A. CRANE, Saginaw.
To Fort Riley for instruction, Capt. J. W. BACHELOR, Oxford.

Minnesota

To Camp Cody, N. M., as tuberculosis examiner, from Vancouver Barracks, Lieut. L. W. POLLOCK, Rochester.
To Camp Crane, Pa., from Camp Grant, Lieut. J. A. DAHL, Minneapolis.
To Camp Custer, Mich., base hospital, from Camp Dodge, Lieut. T. GRATZEK, St. Paul.
To Camp Logan, Texas, from Fort Riley, Capt. J. V. JOHNSON, Morgan Park; Lieut. E. A. RUMREICH, Mahnomen.
To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. G. W. DAHLQUIST, Lancaster.
To Fort Benjamin Harrison, base hospital, from Fort Riley, Capt. K. H. SCHMIDT, Minneapolis.
To Fort Oglethorpe for instruction, from Fort Riley, Capt. M. J. KERN, St. Cloud.
To report to the governor of the Panama Canal, from Camp Pike, Major H. G. BICKFORD, Minneapolis.
To Washington, D. C., Capt. C. L. GREENE, St. Paul. Surgeon-General's Office, from Rochester, Col. C. H. MAYO, Rochester.
To Waynesville, N. C., from New Haven, Capt. R. I. HUBERT, St. Paul.
The following order has been revoked: *To Camp Meade, Md.*, from Camp Lee, Major J. C. SESSIONS, Minneapolis.

Mississippi

To Camp Dix, N. J., base hospital, from Lakewood, Lieut. R. L. BEADLES, Coffeeville.
To Camp Grant, Ill., from Fort Oglethorpe, Capt. J. B. MAGEE, Prentiss.
To Camp Joseph E. Johnston, Fla., Lieut. D. S. SMITH, Rodney.
To Camp Logan, Texas, from Fort Riley, Lieut. J. D. WINTER, Stover.
To Denver Colo., from New Haven, Lieut. B. C. BERNARD, Indianola.
Honorably discharged on account of physical disability not incurred in line of duty, Lieut. M. PORTER, Water Valley.

Missouri

To Camp Dick, Texas, from Mineola, Capt. A. L. LUDWICK, Kansas City.
To Camp Forrest, Ga., Lieut. C. A. KELLY, St. Louis.
To Camp Greene, N. C., base hospital, from Camp McClellan, Capt. A. G. WICHMANN, St. Louis.
To Camp Kearney, Calif., from Fort Riley, Capts. J. F. KOOGLER, Kansas City; E. C. HILL, Smithville; Lieut. E. F. KEARNEY, Oregon.
To Camp Logan, Texas, from Fort Riley, Capts. E. H. CARPENTER, Helena; W. E. RUDD, Salem; Lieuts. W. E. LOCKWOOD, Potts; C. A. TUCKER, Springfield; N. N. YAHLEM, St. Louis; C. E. BENHAM, Tarkio.
To Camp McClellan, Ala., base hospital, from Camp Pike, Capt. M. L. UNDERWOOD, St. Joseph.
To Camp Sevier, S. C., as tuberculosis examiner, from Camp Jackson, Capt. F. B. SPENCER, Hannibal.
To Camp Sherman, Ohio, base hospital, from Camp Beauregard, Lieut. P. A. BRICKEY, St. Louis.
To Fort Benjamin Harrison, base hospital, from Camp Cody, Capt. L. RASSIEUR, St. Louis; from Camp Travis, Lieut. W. H. WAGNER, Berger.
To Fort Oglethorpe for instruction, Capts. E. R. WALKER, Sedalia; L. C. HERCHENROEDER, St. Louis.
To Jefferson Barracks, Mo., Capt. O. S. McCALL Wheaton.
To Leon Springs, Texas, from Fort Riley, Capt. V. B. JANES, Cameron.
The following order has been revoked: *To Camp Gordon, Ga.*, base hospital, Capt. L. G. BEHRONS, St. Louis.

Montana

To Camp Lewis, Wash., Capt. C. E. BELTZER, Washoe.
To Fort Benjamin Harrison, base hospital, from Camp Kearney, Lieut. J. L. TREACY, Helena.
To Fort Oglethorpe for instruction, Lieut. S. E. LEARD, Livingston.

Nebraska

To Camp Crane, Pa., from Camp Devens, Capt. J. A. HENSKE, Omaha.
To Camp Upton, N. Y., base hospital, from Jefferson Barracks, Lieut. J. C. DAVIS, Jr., Omaha.
To Fort Oglethorpe for instruction, Lieuts. J. H. BOYES, Hebron; D. C. SIGWORTH, Stanton; from Fort Riley, Capt. F. H. KUEGLE, Omaha.
To Fort Riley for instruction, Lieut. F. S. SALISBURY, Broken Bow.
Resignation of Major J. P. LORD, Omaha, accepted.

New Hampshire

To Camp Crane, Pa., from New Haven, Lieut. R. J. BENNETT, Dover.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. W. E. SMITH, Franklin.

New Jersey

To Camp Crane, Pa., from Fort Benjamin Harrison, Lieut. E. W. ILL, Newark.
To Camp McClellan, Ala., as tuberculosis examiner, from Camp Dix, Capt. E. S. KRANS, Plainfield.
To Camp Sevier, S. C., as tuberculosis examiner, from Camp Jackson, Lieut. E. N. COWAN, Merchantville.
To Camp Shelby, Miss., from Camp Logan, Lieut. M. COHEN, Paterson.
To Camp Upton, N. Y., from Fort Oglethorpe, Capt. P. A. POTTER, East Orange.
To Fort Hamilton, N. Y., Lieut. R. G. M. EHLERS, Ocean Grove.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. H. WARREN, Newark.
The following order has been revoked: *To Camp Wheeler, Ga.*, base hospital, Lieut. A. E. OLPP, West Hoboken.

New Mexico

To Camp Dodge, Iowa, from Fort Des Moines, Capt. G. K. ANGLE, Albuquerque.
To Camp Logan, Texas, base hospital, for instruction, Lieut. F. H. CRAIL, East Las Vegas.

New York

To Camp Cody, N. M., from Fort Riley, Lieut. L. M. VINCENT, New York.
To Camp Crane, Pa., from Army Medical School, Lieut. G. G. DAVIS, Arcade; from Camp Devens, Capt. A. H. TERRY, New York; from Camp Lee, Lieut. F. J. CLUNE, Yonkers, from Camp Sheridan, Capt. W. R. THOMSON, Warsaw; from Fort Oglethorpe, Lieut. J. A. BILELLO, Brooklyn; from New Haven, Lieut. F. W. PALMER, Buffalo; from Walter Reed General Hospital, Capt. J. E. CONBOY, New York.
To Camp Custer, Mich., base hospital, from Camp Sheridan, Capt. T. H. CURTIN, New York; from Camp Sherman, Lieut. T. C. McCOY, New York.
To Camp Fremont, Calif., base hospital, from Camp Lee, Major T. B. SPENCE, Brooklyn.
To Camp Greene, N. C., base hospital, from Camp Jackson, Lieut. A. LACOVARA, New York.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. G. F. CLARK, Brooklyn.
To Camp Lee, Va., Capt. F. N. DEALY, Brooklyn.
To Camp McClellan, Ala., as tuberculosis examiners, from Camp Jackson, Capt. S. A. MAHADY, Utica; from Hoboken, Capt. H. C. DREW, Brooklyn.
To Camp Sevier, S. C., as tuberculosis examiner, from New Haven, Lieut. B. C. BULLEN, New York.
To Camp Upton, N. Y., base hospital, from Camp Sevier, Lieut. D. TROPAUER, New York; from Fort McPherson, Lieuts. L. SZERLIP, Rockaway Beach; F. S. O'BRIEN, Wappingers Falls; from Fort Sill, Lieut. A. J. ANDERSON, Long Island City.
To Denver, Colo., from New Haven, Lieut. S. A. BINDERMAN, New York.
To Fort Douglas, Utah, from Camp Lewis, Capt. R. M. JONES, New York.
To Fort Hamilton, N. Y., from Eastern Department, Capt. A. S. DRISCOLL, Staten Island; from New York, Lieut. S. L. SIEGLER, New York.
To Fort Oglethorpe for instruction, Capt. E. C. FASSETT, New York; Lieuts. N. M. McFARLAND, Brooklyn; D. N. COTT, Buffalo; W. J. GIBSON, Rochester.
To Lakewood, N. J., for instruction, Lieut. R. WEST, New York.
To Middletown, Pa., from Fairfield, Ohio, Lieut. M. H. GOLDBERG, Buffalo.
To the retired list, from New York, Lieut.-Col. M. C. WYETH.
Honorably discharged on account of physical disability incurred in line of duty, Capt. A. A. MENDEZ, Brooklyn. On account of physical disability existing prior to entrance into the service, Capt. C. F. KIVLIN, Troy; Lieut. W. W. MILLIAS, Rome.

North Carolina

To Camp Crane, Pa., from Camp McClellan, Lieut. J. W. DAVIS, Statesville.
To Camp McClellan, Ala., as tuberculosis examiner, from Camp Jackson, Capt. J. R. WILLIAMS, Asheville.
To Camp Sevier, S. C., as tuberculosis examiner, from Camp Jackson, Capt. G. B. MORRIS, Mount Olive.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Capt. M. A. BOWERS, Thomasville; Lieut. W. W. JOHNSTON, Manteo.
To Fort Oglethorpe for instruction, Lieut. M. A. McIVER, Gulf.

North Dakota

To Camp Kearney, Calif., as assistant to camp surgeon, from Fort Oglethorpe, Lieut. A. PEAKE, Grand Forks.
To Fort Benjamin Harrison, base hospital, from Camp Dodge, Lieut. W. S. CHERRY, Enderlin.

Ohio

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. H. H. WEBSTER, Dayton.
To Camp Abraham Eustis, Va., as camp surgeon, from Camp Perry, Major A. FREER.
To Camp Crane, Pa., from Camp Custer, Lieut. G. T. MEEK, Columbus; from Camp Dix, Lieut. A. N. SMITH, Columbus; from Camp Grant, Lieut. E. H. McDonald, Bloomingburg.
To Camp Custer, Mich., base hospital, from Camp Grant, Lieut. L. G. SHEETS, Cleveland.
To Camp Dix, N. J., from Fort Oglethorpe, Lieuts. W. J. SMITH, Arcanum; H. L. WELLS, Cambridge.
To Camp Grant, Ill., from Fort Oglethorpe, Capt. E. L. LEONARD, Fulton.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. J. J. SWEENEY, Toledo.
To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. R. B. BOWEN, Toledo.
To Camp Knox, Ky., from Fort Oglethorpe, Lieut. E. M. COLLIER, Toledo.
To Camp Lee, Va., from Fort Oglethorpe, Capt. H. W. BLAIR, Mount Vernon; Lieuts. E. P. KENNEDY, Cleveland; W. N. ROGERS, Hamilton.
To Camp Logan, Texas, from Fort Riley, Lieut. M. M. CRITCHLOW, Cincinnati.
To Camp McClellan, Ala., as tuberculosis examiner, from Camp Dix, Lieut. C. B. HAMMA, Springfield.
To Camp Meade, Md., to examine the command for nervous and mental diseases, from Camp Shelby, Lieut. C. W. SAWYER, Marion.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieuts. S. A. CONRAD, Leetonia; J. W. CROFT, West Liberty.
To Camp Upton, N. Y., base hospital, from Camp Dix, Lieut. W. L. LATHROP, Metamora.
To Fort Benjamin Harrison, base hospital, from Camp Sherman, Capt. W. C. GATES, Bucyrus.
To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieut. D. H. COLEMAN, Cincinnati; from Camp Wadsworth, Lieut. W. J. GRAF, Cincinnati. For instruction, Lieut. W. A. KOCH, Bucyrus.
To Syracuse, N. Y., from Lakewood, Lieut. R. A. THORNTON, Columbus.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. L. FAST, Paulding.

Oklahoma

To Camp Beauregard, La., Lieut. A. A. THURLOW, Norman.
To Camp Crane, Pa., from Camp Sevier, Lieut. R. R. HUME, Minco; from Camp Travis, Lieut. H. B. JUSTICE, Sapulpa; from New Haven, Lieut. E. T. BALLANTINE, Muskogee.
To Camp Custer, Mich., base hospital, from Camp Dodge, Lieut. W. B. CATTO, El Reno.
To Camp Grant, Ill., from Fort Oglethorpe, Lieut. J. ASHLEY, Fletcher.
To Camp Hancock, Ga., base hospital, from Camp Gordon, Capt. H. REED, Oklahoma.
To Camp Kearney, Calif., from Fort Riley, Lieut. E. W. KING, Bristow.
To Camp Meade, Md., evacuation hospital, from Camp Beauregard, Lieut. F. R. FIRST, Cashion.
To Camp Newton D. Baker, Texas, base hospital, from Fort Bliss, Capt. J. A. WALKER, Shawnee.
To Fort Benjamin Harrison, base hospital, from Camp Travis, Lieut. A. W. HARRIS, Muskogee.
To Fort Oglethorpe, evacuation hospital, from Camp Kearney, Capt. O. HOVENDEN, El Reno.
To Fort Reno, Okla., from Fort Sill, Lieut. W. W. D. AKERS, Tyrone.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. W. E. WRIGHT, Tulsa.
Honorably discharged, Lieut. W. C. THRELKELD, Ada.

Oregon

To Camp Crane, Pa., from Camp Lewis, Capt. C. E. SEARS, Portland.
To Fort Riley for instruction, from San Francisco, Major G. E. DARROW, Eugene.

Pennsylvania

To Camp Beauregard, S. C., base hospital, from Camp Jackson, Lieut.-Col. A. C. ABBOTT, Philadelphia.
To Camp Cody, N. M., as tuberculosis examiner, from Vancouver Barracks, Lieut. U. H. REIDT, Jeanette.
To Camp Crane, Pa., from Camp Devens, Lieut. S. J. GLASS, Jr., Pittsburgh; from Camp Hancock, Lieut. J. S. MORGAN, Crafton; from Camp Meade, Lieuts. C. B. LININGER, Erie; J. H. BARTLEY, Jr., Philadelphia; from Camp Sheridan, Capt. M. W. REED, Bellefonte.
To Camp Grant, Ill., from Fort Oglethorpe, Lieuts. W. H. KOHLER, Milroy; C. A. YOCOM, Reading; G. M. B. BRADSHAW, Sugar Grove. Evacuation hospital, from Fort Bayard, Capt. S. J. REPPLIER, Philadelphia.
To Camp Greene, N. C., base hospital, from Camp Jackson, Lieut. F. J. CONAHON, Morea; from Camp McClellan, Lieut. P. S. STOUT, Philadelphia; from Camp Wadsworth, Major S. C. BURNS, Philadelphia.
To Camp Jackson, S. C., base hospital, Capt. T. C. DAVIS, Philadelphia.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. A. F. B. MORRIS, Pittsburgh.
To Camp Lee, Va., from Fort Oglethorpe, Lieut. C. E. LERCH, Wyomissing.
To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. E. B. COOPER, Sunbury. As tuberculosis examiner, from New Haven, Lieut. I. Z. STALBERG, Philadelphia.
To Camp Sherman, Ohio, base hospital, from Camp Beauregard, Lieut. A. B. SMITH, Wyoming. As assistant to camp surgeon, from Camp Meade, Capt. C. JACOBOSKY, Wilkes-Barre.
To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. L. D. SARGENT, Washington; from Walter Reed General Hospital, Lieut. D. M. ROTHROCK, Altoona.
To Colonia, N. J., Lieut. W. J. HAWKINS, Millsboro.
To Fort Hamilton, N. Y., from Camp Laurel, Lieut. B. H. HOKE, Coalport.
To Fort Oglethorpe evacuation hospital, from Camp Beauregard, Lieut. C. A. PAULUS, Telford; from Camp Wadsworth, Lieut. M. FRISHMAN, Pittsburgh. For instruction, Capt. P. R. CORRELL, Easton; Lieuts. A. B. BRUNER, Columbia; C. A. McNEILL, Erie; J. A. GORMLY, Meadow Lands; R. S. CLARK, J. S. LOGAN, L. W. MILFORD, Pittsburgh; W. R. LOVERING, Stroudsburg; W. C. BYERS, Webster; from Pittsburgh, Lieut. J. S. LOGAN, Pittsburgh.
To Lakewood, N. J., for instruction, Lieut. J. G. FLYNN, Ridgway.
To Philadelphia, Pa., to take charge of university instruction in orthopedic surgery, from Washington, Lieut.-Col. J. T. RUGH, Philadelphia.
To report to the commanding general, Panama Canal Department, from Fort Oglethorpe, Lieut. C. RODRIGUEZ, Easton.

Porto Rico

To Camp Las Casas, P. R., Lieut. P. A. RIVERA, Guaynabo.
To Washington, D. C., for instruction, from Camp Las Casas, Lieut. C. S. MOSS, Ponce.

South Carolina

To Camp Grant, Ill., from Fort Oglethorpe, Capt. G. W. POOVEY, Lancaster.
To Camp Jackson, S. C., base hospital, from Panama Department, Capt. M. C. PALMER, Tyron.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. C. C. GAMBRILL, Abbeville.
To Camp Lee, Va., Capt. H. H. WYMAN, Jr., Aiken.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. A. HAYNE, Columbia.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. J. W. PARKER, Greenville.

South Dakota

To Camp Crane, Pa., from Camp Grant, Lieut. T. J. DEVEREAU, Aberdeen.
To Camp Custer, Mich., base hospital, from Camp Grant, Lieut. S. A. DONAHOE, Sioux Falls.
To Camp Dodge, Iowa, base hospital, for instruction, Capt. J. F. GARRISON, Oldham.
To Camp Grant, Ill., from Fort Oglethorpe, Capt. W. F. KELLER, Sioux Falls.
To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieut. L. J. BROOKMAN, Vermilion.
To Fort Benjamin Harrison, base hospital, from Camp Dodge, Capt. E. M. STANSBURY, Vermilion; Lieut. L. HARE, Spearfish.
To Fort Riley for instruction, Lieut. N. J. NESSA, Sioux Falls.
To Fort Snelling, Minn., base hospital, from Camp Dodge, Lieut. H. L. CRANE, Lead.

Tennessee

To Camp Crane, Pa., from Camp Meade, Lieut. H. E. THOMAS, Memphis.
To Camp Hancock, Ga., base hospital, from Camp Gordon, Capt. J. A. PRICE, Jasper.
To Fort Oglethorpe for instruction, Lieut W. STEELE, Chattanooga.
To New Haven, Conn., Yale Army Laboratory School, for instruction in bacteriology, from Fort Monroe, Lieut. J. H. LITTERER, Nashville.
To Newport News, Va., Lieut. C. H. CARMICHAEL, Knoxville; from Camp Dodge, Lieut. E. C. MATTHEWS, Trenton.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Custer, Mich.*, base hospital, for instruction, Lieut. C. R. CRUTCHFIELD, Nashville.

Texas

To Astoria, N. Y., from Fort Oglethorpe, Capt. C. P. COOK, Ennis.
To Auburn, Ala., Alabama Polytechnic Institute, from Camp Logan, Major G. A. McBRIDE, Harlingen.
To Camp Cody, N. M., as tuberculosis examiner, from Fort Logan, Lieut. W. E. CAMPBELL, Cedar Creek.
To Camp Crane, Pa., from Army Medical School, Lieut. E. ACKER, Pasadena.
To Camp Greene, N. C., base hospital, from Camp Beauregard, Capt. R. T. MORRIS, Houston; Lieut. T. N. JARMON, Terrell.
To Camp Logan, Texas, from Fort Riley, Capt. C. P. JONES, Bay City.
To Camp Shelby, Miss., base hospital, Lieut. J. V. HOPKINS, Victoria.
To Camp Travis, Texas, base hospital, Capt. H. G. WALCOTT, Dallas.
To Denver, Colo., from New Haven, Capt. J. T. BERNARD, Dallas; Lieut. C. R. GOWEN, Carlsbad.
To Fort Benjamin Harrison, base hospital, from Camp Bowie, Capt. T. T. JACKSON, San Antonio.
To Fort Oglethorpe for instruction, Lieut. D. M. STONE, San Antonio.
To Fort Riley, from Camp Bowie, Lieut. A. E. WHITE, Houston.
To Leon Springs, Texas, from Fort Riley, Lieut. P. C. PLUENNEKE, Cranfills Gap.
To Newport News, Va., from Camp Dodge, Lieut. E. C. SCHULZE, Shiner.
Honorably discharged, Lieut. H. BRADBROOK, Cat Springs. On account of physial disability existing prior to entrance into the service, Capt. N. T. MOORE, El Paso.
The following order has been revoked: *To Hoboken, N. J.*, from Camp Dix, Lieut. H. L. BROWN, Sherman.

Utah

To Washington, D. C., Surgeon-General's Office, from Fort Douglas, Lieut.-Col. E. G. NORTHINGTON.

Vermont

To Camp Sherman, Ohio, base hospital, from Lakewood, Lieut. R. E. AVERY, Burlington.

Virginia

To Camp Travis, Texas, as camp surgeon, from Camp MacArthur, Capt. E. L. FLANAGAN, Richmond.
To Fayetteville, N. C., from Camp Abraham Eustis, Lieut.-Col. D. W. McENERY.
To Roland Park, Md., from Camp Jackson, Capt. N. ARDAN, Bristol.

Washington

To Camp Kearney, Calif., from Fort Riley, Capts. C. S. HOOD, Ferndale; C. E. KEELER, Yakima.
To Fort Snelling, Minn., base hospital, from San Francisco, Lieut. S. E. ROSENTHAL, Spokane.
To Jefferson Barracks, Mo., from Newport News, Capt. K. WINSLOW, Seattle.

West Virginia

To Camp Crane, Pa., from Camp Meade, Capt. G. YOST, Huntington.

Wisconsin

To Camp Crane, Pa., from Camp Grant, Capt. H. M. KAY, Madison; Lieut. J. T. KLEIN, Columbus; from Camp Meade, Lieut. A. A. CHARBONNEAU, Green Bay.
To Camp Custer, Mich., base hospital, from Camp Grant, Lieut. W. F. GROTJAN, Milwaukee.
To Camp Grant, Ill., from Fort Oglethorpe, Lieut. L. E. YOUMANS, Mukwonago.
To Camp Lee, Va., from Fort Oglethorpe, Capt. W. D. HARVIE, Oshkosh.
To Camp Logan, Texas, from Fort Riley, Lieuts. J. M. BAASEN, Mount Calvary; E. L. SCHROEDER, Shawano.
To Denver, Colo., from New Haven, Lieut. L. F. RUSCHHAUPT, Milwaukee.
To Fort Benjamin Harrison, base hospital, from Camp Travis, Lieut. F. J. KORTHALS, Milwaukee.
To Fort Riley for instruction, Lieut. P. G. McCABE, Dotyville.

Wyoming

To Raleigh, N. C., as camp surgeon, from Western Department, Lieut. F. H. SPARRENBERGER, Fort Yellowstone.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

District Meeting.—The Tenth District Medical Association met at Fort Smith, September 17. In addition to the regular program a surgical clinic was conducted by Dr. Harry C. King at the Sparks Memorial Hospital.

CALIFORNIA

Hygiene Bureau Established.—The state board of health has created a bureau of child hygiene to study the child health of the state, to cooperate with existing agencies now devoted to that cause. Miss Amy D. Steinhard has been placed in charge of the bureau.

New Laboratory Established.—A building for a research laboratory and clinic is to be erected at the Cottage Hospital, Santa Barbara, similar in its exterior architecture to the other buildings. It will be known as the Memorial Laboratory and Clinic for the Study and Treatment of Nephritis, Shock, and Diabetes, and will be under the care of Dr. Nathaniel Bowditch Potter. It is expected that the building will be ready for occupancy early next year.

Personal.—Dr. J. Perry Lewis, San Diego, who has been ill in the Agnes Hospital on account of septicemia, is reported to be improved.——Dr. William W. Crawford, formerly health officer of San Diego, has been appointed a member of the state board of health.——Capt. Theophilus C. Robinson, Los Angeles, who recently entered the Medical Reserve Corps, was operated on at Fort Riley, Kan., September 6, for the removal of a tumor of the bladder, and is reported to be making satisfactory progress toward recovery.——Dr. Reginald S. E. Murray, San Jose, has been gazetted captain in the Canadian Expeditionary Forces.

ILLINOIS

College Suspended.—Reports state that the Hahnemann Medical College and Hospital of Chicago has suspended for the duration of the war.

Red Cross Commission to Greece.—Drs. Samuel J. Walker, Chicago, and Charles B. Gibson, Chicago, are members of the Red Cross Commission that has started for Greece.

State Conference of Charities.—The Department of Public Welfare announces that the State Conference of Charities and Correction will be held at Decatur, October 25 and 27; that the Charity Organization Federation and State Probation Officers' Association will meet, October 24, and that the State Association of County Home Superintendents will hold its annual meeting, October 24 to 26.

Personal.—Major Milton Mandel, M. C., U. S. Army, has been relieved from duty with Base Hospital No. 12, and has been appointed senior division consultant in general medicine to the Second Army Corps.——Dr. Jonathan L. Wiggins, East St. Louis, has been appointed by the director of the Registration and Education of the State of Illinois a member of the examining committee of medicine in place of Dr. Carl E. Black, Jacksonville, who has resigned to go abroad with the Red Cross commission to Greece.

Licenses Revoked.—An official notice from the Department of Registration and Education of Illinois states that, September 24, the license of Dr. Charles E. Cessna, Oak Park, was revoked because of his connection with an alleged quack concern—the J. Russell Price Company of 9 South Clinton Street, Chicago. At the same time the department revoked the license of Dr. Edward D. Porter of Indianapolis, Ind., for having loaned his Illinois certificate for a specified sum to Mr. Emil Pelisher for use in an office in Joliet. It appears that Mr. Pelisher had been conducting a chain of doctors' offices. The license of Dr. George W. Farver of Hammond, Ind., was revoked recently for a similar offense.

INDIANA

Addition to Tuberculosis Camp.—Former Mayor Boehne has given to the Vanderberg County Antituberculosis Society an additional building for the Boehne Camp which will accommodate forty patients and in case of emergency sixty patients. The estimated value of the camp is now $52,000. With the completion of the new building the camp will be able to care for 110 patients. The new hospital is 151½ feet long, 28½ feet wide and will contain besides the schoolroom and wards, dressing rooms, toilet rooms and other facilities.

Child Welfare Work.—Under the auspices of the Child Welfare Committee, Marion County Council of Defense, consisting of Drs. Jane M. Ketcham, chairman, Edgar F. Kiser, Walter D. Hoskins, Charles O. McCormick and J. Don Miller, all of Indianapolis, there were held during 1918 in Marion County 212 clinics for children, at which 5,304 children were examined and 17,000 children enrolled. Of those examined there were 3,058 children of normal weight, 3,859 children of normal height and 2,858 with no defect. Ninety-seven physicians volunteered services for this work. Follow-up work is to be done and four additional weekly clinics are to be held for children of from 2 to 6 years of age. A report of all defective children has been put into the hands of the Public Health Nursing Association and all such children are to be visited at regular intervals.

New State Officers.—At the annual meeting of the Indiana State Medical Association held in Indianapolis, September 25 to 27, under the presidency of Dr. J. Rilus Eastman, Indianapolis, the following officers were elected: president, Dr. William H. Stemm, North Vernon; vice presidents, Drs. Lindsay C. Whiteside, Franklin, Stephen B. Sims, Frankfort, and Henry B. Hill, Logansport; secretary-treasurer, Dr. Charles N. Combs, Terre Haute (reelected); delegate to the American Medical Association, Dr. J. Rilus Eastman, Indianapolis; alternate, Dr. Miles F. Porter, Ft. Wayne, and councilors, first district, Dr. James Y. Welborn, Evansville, third district, Dr. Walter J. Leach, New Albany, fourth district, Dr. August G. Osterman, Seymour, fifth district, Dr. Spencer M. Rice, Terre Haute, ninth district, Dr. William R. Moffitt, West Lafayette, and twelfth district, Dr. Elmer E. Morgan, Ft. Wayne. Indianapolis was chosen as the next place of meeting.

LOUISIANA

State Clinics.—Arrangements are being made for the establishment of municipal, parish, and state clinics for the treatment of communicable diseases in Shreveport and other principal cities of the state.

New Home for Sanatorium.—Plans for a new building for The Pines, the Shreveport sanatorium of the antituberculosis league, have been completed and ground will be broken this month. The building will be located on a site of 54 acres, 8 miles from Shreveport.

MARYLAND

Epidemic of Influenza Under Control.—Although the number of cases of influenza in the military camps around Baltimore is increasing, it is increasing very slowly and the medical authorities, both of the government service and the state and city, are of the opinion that they have the situation under control and that there is no great danger of an epidemic in the city. Two hundred cases have developed at Camp Holabird, at the Curtis Bay ordnance depot and at the Quartermaster's station at Riverview, and there are about 300 cases at U. S. Army General Hospital No. 2 at Fort McHenry, to which cases from these stations are immediately sent. There are also 1,900 cases at Camp Meade, although there have been but two deaths in all that number of cases, and an outbreak has been reported at Edgewood to the city health authorities, involving 1,100 soldiers and forty civilian employees. Notwithstanding the large number of cases, Dr. C. Hampson Jones, chief of the bureau of communicable diseases of the state board of health, stated that he did not consider the situation alarming. At this time the influenza does not appear to have spread generally throughout the state. Most of the reports received by the department of health have come from military camps, from Baltimore and Annapolis. There are about 500 cases in Annapolis.

MASSACHUSETTS

District Society Meeting.—The quarterly meeting of the Essex North District Medical Society was held at Amesbury Club, September 25. Lieut.-Col. Fred B. Lund, M. C., U. S. Army, Boston, read a paper on "The Present Needs of Our Country for Physicians," and Lieut.-Col. Channing Frothingham, Boston, M. C., U. S. Army, commanding the base hos-

pital at Camp Devens, read a paper on "The Clinic Advantages of an Army Officer."

Personal—Dr. Llewellyn H. Rockwell, Boston, has been appointed resident physician at Long Island Hospital, succeeding Dr. Arthur L. Kinne.——Dr. John F. O'Brien, Taunton, has been appointed a trustee of the consumptives' hospital.——Dr. George McL. Waldie, for many years assistant physician at the State Infirmary, Tewkesbury, Mass., and later connected with the New Bedford Tuberculosis Sanatorium, has been appointed superintendent of the Fair Oaks Lodge Sanatorium, Wadena, Minn., and medical director of Sand Beach Sanatorium.——Dr. Arthur T. Schoomaker is under treatment in the Noble Hospital, Westfield, on account of tumors of the neck, and Dr. George V. Wager, Russell, is ill with pneumonia in the same institution.——Dr. Charles H. Winn, Roxbury, Boston, was appointed high medical examiner of the Massachusetts Catholic Order of Foresters, September 14, succeeding Dr. Francis J. Hanley, Whitman, resigned to acept a commission in the United States Service. ——Dr. Arthur V. Pierce, New Bedford, has been commissioned First Lieutenant, M. C., Massachusetts State Guard, and has been assigned to the Seventh Infantry, succeeding Capt. Holder C. Kirby, New Bedford, resigned.

NEW YORK

Personal.—Dr. and Mrs. James H. Jackson, Danville, celebrated the fifty-fourth anniversary of their wedding, September 13.——Dr. Arthur D. Jaques, Lynbrook, has been appointed sanitary supervisor in Long Island, succeeding Dr. Overton. ——Dr. Mary Walker, Bunker Hill, who has been seriously ill at the General Hospital, Fort Ontario, is convalescent.

Nurses Wanted.—The Womens' Chapter of the Division of the State Defense Council is cooperating with the State Hospital Commission in its effort to secure 1,000 nurses for the Hospital for the Dependent and Insane. The State Hospital Commission has a three-year course which leads to the registered nurse certificate, and a two-year course, candidates for which need only a grammar school education.

Health Commissioner Condemns Garbage Plant.—After a long and bitter fight waged for several years by the residents of Staten Island to force the Metropolitan By-Products Company to change its methods of handling garbage inasmuch as they constituted a public nuisance, Commissioner Copeland has given the company five days in which to abate the nuisance and unless it complies with this order or appeals to the health department for a modification of this ruling, the street cleaning department will be notified that no more garbage is to be taken to the plant for reduction. This plant has been the source of a very large part of the country's glycerin supply and it is probable that some less objectionable method of garbage reduction will be devised that will permit the company to continue to operate.

New York City

Personal.—Dr. Frank J. Monaghan, Brooklyn, has been appointed deputy commissioner and sanitary superintendent of the department of health, succeeding Dr. B. Franklin Knause, Brooklyn, resigned to accept a commission in the Army.

Work of Eye Clinics Curtailed.—The department of health is about to curtail its clinical work on the eyes of children to the extent of suspending the fitting of glasses. This step has been taken as a war measure and a policy to be pursued only for the period of the war. Clinics where the fitting of glasses has been the exclusive work in the past will be closed, but other eye clinics where diseases of the eye are treated will be continued.

The Influenza Epidemic.—The number of cases of influenza reported to the health department has increased day by day during the week of September 23. The largest number of cases thus far reported for one day was 324 new cases, September 27, this being double the number reported for the previous day. Although the health commissioner, Dr. Royal S. Copeland, asked the board of estimate for only $5,000 with which to combat the influenza epidemic, he was granted an appropriation of $25,000.

Borough Autonomy.—In October a radical change came in force in the administration of the health department. Health Commissioner Copeland has authorized the chief health officer in each borough to assume full responsibility and these officers will be known as assistant sanitary superintendents. This change is made in conformity with the charter requirements. The purpose is not to afford power in the part of the assistant sanitary superintendent, but to make clear the question of disciplinary authority.

OHIO

Convicted of Illegal Drug Sale.—Dr. Thomas E. Burgess, Toledo, is said to have been found guilty of the illegal sale of morphin by a jury in the probate court, September 13.

Reporting Venereal Disease.—According to a bulletin of the state department of health, Akron reports nearly 500 of the 2,000 cases of venereal disease reported to the registrar during August. This city has made the most complete report of any. It is believed that these diseases are not more prevalent in Akron than in Toledo, Cleveland and Cincinnati, larger cities, from which reports are very incomplete.

Physical Training Among Schoolchildren.—The *Ohio Public Health Journal* declares that 75 per cent. of the schoolchildren of Ohio have remediable physical defects. Only the larger cities of the state have such medical supervision in the schools as would improve the condition of most of these children. As shown by the Health and Old Age Insurance Commission of the state, there are 60,000 children in the rural schools who have very little physical supervision. About half of those in the city schools have some degree of supervision.

Personal.—Dr. Harley E. Ward and Cephas C. Greiner, both of Pemberville, sustained severe injuries by the overturning of their automobile while making a professional call near Pemberville, September 14.——An effort is being made to induce Dr. Augustus Ravogli to assume the professorship of dermatology in the medical department of the University of Cincinnati.——Dr. Frank H. Lamb, Cincinnati, who went to France last April under the auspices of the Child Welfare Bureau of the American Red Cross, will soon return to America to enter the Medical Reserve Corps.—— Dr. William H. Peters has been appointed acting health officer of Cincinnati, pending the election of a successor to the late Dr. John H. Landis.

PENNSYLVANIA

Personal.—Dr. David Nathan, Norristown, has been commissioned a captain in the Canadian Army Medical Corps.—— Dr. Edward H. Harris, Snow Shoe, is in the Bellefonte Hospital on account of chest injuries received in a recent automobile collision.

New State Dispensaries Open.—Five additional state dispensaries have been opened at York, Lancaster, Williamsport, Wilkes-Barre and Altoona, for the treatment of venereal diseases. The dispensaries are in connection with the state tuberculosis service, and the clinics are held in the same buildings.

Officers Elected.—At a recent meeting of the Union County Medical Society the following officers were elected: president, Dr. Harry R. Thornton, Lewisburg; vice president, Dr. Thomas C. Thornton, Lewisburg, and secretary-treasurer, Dr. Amos V. Persing, Allenwood.——At a recent meeting of the Lehigh Valley Medical Association the following officers were elected: president, Dr. Noah W. Reichard, Bangor; vice president, Dr. Frederick A. Fetherolf, Allentown; secretary, Dr. Alexander Armstrong, White Haven, and assistant secretary, Dr. Roger P. Batchelor, Palmerton.

State Medical Meeting.—The sixty-eighth annual session of the Medical Society of the State of Pennsylvania held in Philadelphia, September 23 to 27, had a smaller attendance than usual owing to the fact that many of its members are in the United States service. The officers elected for the ensuing year are as follows: president, Dr. Cyrus Lee Stevens, Athens; vice presidents, Dr. William Duffield Robinson, Philadelphia; Dr. John N. Sproul, Claysville; Dr. Julius H. Comroe, York, and Dr. Wesley Kunkle, Williamsport; secretary, Dr. Walter F. Donaldson, Pittsburgh; assistant secretary, Dr. Christian B. Longenecker, Philadelphia, and treasurer, Dr. George W. Wagoner, Johnstown. Harrisburg was chosen as the next place of meeting. Dr. Cyrus L. Stevens, the president-elect, has served the association for twenty-three years as its secretary and was voted a purse of $2,000.

Philadelphia

Personal.—Dr. Caroline M. Purnell has sailed for France as head of the second unit of the American Women's Hospitals.——Dr. Solomon Marks has been appointed assistant school medical inspector, health department, at a salary of $600.——Dr. Joseph M. Asher has been elected instructor in surgery at the Temple University.

Influenza Increases.—Two hundred new cases of "Spanish" influenza were reported to the bureau of health within twenty-four hours ending September 27. The records of the health department show that 123 of this number are civilians. The remaining seventy-seven are in the Fourth Naval District. Of the civilian cases, sixty-eight are in South Philadelphia, forty-six in North Philadelphia and nine in West Philadelphia.

VIRGINIA

Personal.—Drs. Frank G. Wilson, Norfolk, and James W. Reed, Ocean View, whose terms expired last month, have been requested by Dr. Ennion G. Williams, Richmond, secretary of the state board of health, to remain in office for the time being.——Dr. Roy K. Flannagan, chief of the Richmond Health Department, has declined the position of health officer of Hopewell.

Public Health Campaign.—An intensive health campaign was carried on in Gloucester County, September 20 to 28, under the auspices of the Virginia Anti-Tuberculosis Association and the state board of health. During the week leaders of the Virginia Anti-Tuberculosis Association will visit all the public schools in the county, and stimulate the interest of the public in behalf of the public health organizations.

New Clinics.—Dr. Powhatan S. Schenck, health commissioner of Norfolk, has requested that the venereal clinic conducted by the City Health Commission in conjunction with the federal authorities be provided with more adequate quarters.——The clinic for the treatment of the eye, ear, nose and throat was opened at Norfolk last month in charge of Dr. B. D. Downing. The hours for the clinic are from one to two o'clock, on Tuesday and Thursday afternoons.

Diploma and License Stolen.—Secretaries of state licensing boards and others interested, are requested to be on the lookout for a diploma from the Kentucky School of Medicine, Louisville, issued June 12, 1907, and a certificate from the Virginia State Board of Medical Examiners issued in June, 1915, both of which bore the name of Samuel L. Stallard. It appears that these papers were stolen while Dr. Samuel L. Stallard, Newport News, was on the train recently.

WEST VIRGINIA

In Memory of Dr. Megrail.—A special meeting of the Ohio county Medical Society was held in Wheeling, September 14, to adopt suitable resolutions of respect for the late Dr. William P. Megrail.

Personal.—Dr. Floyd F. Farnsworth, Frenchton, has resigned as a member of the state public health council and Dr. Herbert E. Sloan, Clarksburg, has been made his successor.——Dr. Vincent T. Churchman, Charleston, has been elected to succeed Dr. Farnsworth as president of the council.——Dr. Walter Van Ness, in charge of the tuberculosis eradication department of the Bureau of Animal Industry, Washington, D. C., has located at Clarksburg, and will direct the work there.

Venereal Disease Campaign.—A bureau of venereal diseases has been established in the state in connection with the Public Health Council, and Dr. Floyd F. Farnsworth, Charleston, has been appointed acting assistant surgeon, U. S. P. H. S., and placed in charge of this bureau. The regulations of the Public Health Council include a declaration that venereal diseases are dangerous to the public health, the reporting of venereal diseases, instruction of patients, investigation of cases, protection of others from infection by venereally diseased persons, the prohibition of prescribing for venereal disease by druggists, the giving of certificates of freedom from venereal disease is prohibited, and it is declared that all records concerning persons infected with venereal disease should be inaccessible to the public except in so far as publicity may attend the performance of the duties in accordance with the regulations and laws of the state.

CANADA

Most Ontario Doctors Observe Temperance Act.—According to the returns for the mouth of August, about 10 per cent. of the doctors of Ontario are issuing most of the prescriptions for liquor in that province. One doctor in Hamilton is said to have issued 725 in the month. Six issued an average of 456. Ninety per cent. of the doctors of the province issued an average of 5.6.

Personal.—Dr. Frederick N. G. Starr, Toronto, has been appointed consulting surgeon with the British forces in France, and has reached there in safety.——Col. Murray Maclaren, C.M.G., St. John, N. B., who has been overseas some years, has been appointed commanding officer of Granville Hospital, Buxton, England.——Lieut. Henry C. Pearson, Toronto, has returned on three months' leave. He enlisted the first month of the war and has been serving in France for the past three years.——Lieut.-Col. Charles S. McVicar, Toronto, was recently recalled for duty in Canada and has arrived home. He was one of the six members of the University of Toronto Base Hospital mentioned in dispatches when it was at Saloniki.——The following lieutenants in the medical service will go from the Third Military District, Kingston, Ont., with the Siberian contingent: Hendry Connell, J. H. Munroe, J. A. Lalonde, S. J. R. Horne, J. Sharp and F. S. Tisborne.

GENERAL

Prevention of Infant Mortality.—The ninth annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held at Asheville, N. C., November 12 to 14. The program pays especial attention to war subjects.

Industrial Medicine.—At the meeting of the Seventh Annual Safety Congress in St. Louis, September 20, Dr. Clarence D. Selby, U. S. P. H. S., discussed industrial medicine as an increased production in war times, and urged increasing cooperation by employers, employees, medical schools, and the medical profession generally.

Railroad Relief Committee Appointed.—Director-General McAdoo has announced the appointment of the following committee on health and medical relief for the railroad administration: Dr. J. E. Dunott, chairman, and Drs. George W. Cale, Jr., St. Louis; Victor G. Heiser, New York City; Thomas R. Crowder, Chicago, and Henry M. Bracken, St. Paul. The committee is charged with recommending all necessary measures to protect the health of employees of the railroads under federal control, based on a survey of conditions.

Leprosy Expert Dies.—Moses Tran Clegg, superintendent of the Queen's Hospital, Honolulu, noted as a bacteriologist and especially for his research work in leprosy, died in Honolulu, August 14. Mr. Clegg was the assistant director of the Bureau of Sciences of the Philippines in 1908, and a year later succeeded in isolating and propagating the leprosy bacillus. He also spent considerable time in work on bubonic plague in San Francisco and New Orleans, and served for eighteen months as laboratory director in the port of New York in the United States Public Health Service.

Influenza.—Influenza, up to September 26, had been reported to the Public Health Service in twenty-six states. It continues to spread rapidly and probably cases will be found in all of the states. September 25, there were 5,000 new cases reported in the Army camps, with 155 deaths. The total cases in the camps to that date were about 30,000. It is believed, however, that as far as the Army camps are concerned, the situation is under control, and in some camps the disease is distinctly on the wane. At the Great Lakes station, near Chicago, among the 45,000 men in camp there had been about 500 deaths from influenza and pneumonia since the beginning of the epidemic, September 9. The disease first appeared in Illinois at Great Lakes, September 9, and since that date there had been about 9,000 cases in the camp.

The Chemical Convention.—The National Exposition of Chemical Industries, held in New York City during the week of September 23, was the most successful ever held in this country, owing to the many developments and advances in chemical science during the war period. One of the most interesting addresses from the medical standpoint was that of Dr. Charles H. Herty in which he suggested a plan for the establishment of a national research laboratory for chemists similar to that of the Rockefeller Institute for Medical Research and providing facilities for experimental work in the chemistry of medicine. This suggestion proposes an institution in which adequate provision would be made for laboratory tests of all kinds, and through which cooperation should be established with the organic laboratories of universities and with the hospitals of the country.

FOREIGN

The Golgi Scholarship.—In honor of Professor Golgi, senator, who retires this year from the chair of pathology and histology at the University of Pavia, it is proposed to found a scholarship in the medical department for the orphan of some physician, preferably one whose father was lost dur-

ing the present war. Contributions may be sent to the treasurer, Tesoriere dell' Ordine dei Medici della Provincia di Pavia.

Welfare Work for the Young.—An exchange quotes the *Münchener medizinische Wochenschrift* to the effect that the Prussian authorities have decreed that every city and rural district is to organize an official board for welfare work for the young. The board is to comprise the governor or mayor, the district physician, some members of the clergy, and twelve experienced men and women, including some medical men or women. They are to have oversight of orphans, illegitimate children, the aid for indigent minors, etc.

Medical School for French West Africa.—According to a report of U. S. Consul W. J. Yerby at Dakar, Senegal, the French government has authorized the establishment of a medical school at Dakar, which was to be opened, Oct. 1, 1918. The school will be under the direct authority of the governor general of French West Africa and under the technical control of the inspector-general of the health medical services of that colony. The object in establishing the school is to supply the needs of the country, especially on account of the war, as thousands will return from the battlefields wounded and in bad health, requiring special medical treatment.

Influenza in Europe.—The epidemic of "Spanish influenza" seems to have been mild in Italy. The cases among the troops on active service have been few and mild. In Switzerland the disease was unusually severe and pneumonia was frequent. Several deaths among physicians were mentioned. One Swiss physician states that in his fifty-three fatal cases, forty-one of the patients were between 15 and 30 and nearly all absolutely healthy young people. This same prevalence of the severer cases among the young is mentioned in the reports from Germany cited in the *Hospitalstidende* of Copenhagen. The fatality is said to be highest between 20 and 40. Besides pneumonia and empyema, serous meningitis, sinusitis and otitis media were observed, but infants seemed to escape entirely. This was noticed also in Spain, infants showing no trace of the disease when both parents and the nurse had it. Even Pfeiffer, the discoverer of the influenza bacillus, was not certain whether the bacteriologic findings were positive for this bacillus, and others in Germany, Sweden and Norway were also dubious about their findings. Lubarsch found pseudomembranes in the throat in some cases. In the Netherlands, in a certain proportion of the cases, diarrhea and abdominal pains were the predominant symptoms. A writer in the *Nederlandsch Tijdschrift* remarks that after this no one can refer to influenza as a "harmless disease." The cry comes also from Portugal that "grippe kills with its pneumonia."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Brazilian Medical Mission in France.—An exchange states that the Brazilian minister announces that Brazil is sending a medical mission to France. The party is to consist of fifty doctors besides a number of students. They are to be attached to the Brazilian Hospital already installed near the front.

Home for Medical Society at Rio de Janeiro.—With appropriate ceremony the cornerstone was laid recently for the building destined to be the home of the Sociedad de Medicina e Cirurgia of Rio de Janeiro. The president of the society, Dr. O. de Oliveira, is said to have been chiefly responsible for this realization of the long cherished dream of the members. The society was founded thirty-three years ago, and it has its own museum and library. The funds for the construction of the building, it is said, have all been subscribed, the national authorities having presented the society with the site, and the municipality having appropriated 6 *contos* for the purpose. The society and its friends in medical and pharmacist circles have raised the balance needed.

CORRECTION

Director Base Hospital No. 53.—The adjutant of Base Hospital No. 53 in France informs us that Lieut.-Col. Daniel A. Sinclair, M. C., U. S. Army, assumed command of this hospital at Camp Hancock, Ga., on May, 1918, and has been in command continuously since that date. The item in THE JOURNAL of July 20, 1918, stating that Lieut.-Col. Albert E. Halstead, M. C., U. S. Army, had been placed in charge of this hospital is incorrect.

PARIS LETTER

PARIS, Sept. 5, 1918.

The American Crusade Against Tuberculosis

In a previous letter (THE JOURNAL, June 8, 1918, p. 1784), mention was made of the crusade begun in France against tuberculosis by the Rockefeller Foundation under the direction of Dr. Livingston Farrand, president of the University of Colorado. Work was begun in one of the densely populated arrondissements or districts of Paris, the nineteenth, and in the département d'Eure-et-Loir. A dispensary system was established, with visiting nurses, and an ingenious method of popular education was inaugurated by means of demonstrative conferences, striking posters, and amusing as well as persuasive pamphlets. The département d'Eure-et-Loir has been traversed effectively during the past two or three months by a dispensary autotruck, provided with everything needed to teach the public and to carry conviction to them (cinematography, etc.). The same outfit has also been taken through the départements of Loir-et-Cher, Indre-et-Loir, and Cher, and is at present covering the département de l'Allier. Another outfit after being taken through the départements d'Ille-et-Vilaine and du Finistère, is now covering the département des Côtes-du-Nord. These educational and prophylactic tours have met with great success, more than half of the population having participated in the conferences.

Physics, Chemistry and Biology as Required Premedical Studies

In France, before entering on medical studies proper, one year is spent in the Facultés des sciences in the study of physics, chemistry and natural sciences—called familiarly the P. C. N. The value of this premedical work as now organized is questionable. These courses are not intended for future medical students alone; hence it is not right to impose this premedical requirement on them. Without a doubt these subjects are indispensable to physicians, but some people contend that it would be better to revert to the system which was in vogue twenty-five years ago under which one year was devoted to the study of physics, chemistry and biology taught in the medical department by physicians, who emphasized particularly the medical application of these sciences.

A Flying Operating Unit

At a recent meeting of the Académie de médecine, Dr. Walther presented the plans and photographs of a surgical avion designed by M. Nemirowski and Dr. Tilmant as capable of rendering service to the severely wounded on the battlefield itself. This avion, the idea for which was encouraged by the late Professor Pozzi, can transport its load anywhere. It is designed to carry a complete surgical equipment—personnel of three—a complete roentgenographic outfit, sterilized instruments, gowns, dressings, in fact everything needed to perform eight emergency operations. The entire outfit, including an autoclave, a reservoir of sterilized water, accumulators and steam sterilizer, weighs only 360 kilograms and occupies a very limited space. The first avion is ready for service. On the initiative of Dr. Stepinski, director of the Polish Service de Santé, a committee has been formed which will present a group of complete surgical avions of this kind to the French army. It will be known as the "escadrille Pozzi" in honor of the man who encouraged the initiative of its inventors.

Antigas Measures

At a conference held recently at l'Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce, consideration was given the properties of the gases now used by the enemy, protective measures against these gases, and the best means for disseminating such knowledge to the physicians now in service. This conference was attended by the medical directors of the Services de Santé of the army, the chiefs of the medicolegal and hygienic centers of the zone of the interior, the chiefs of special services, etc.

The American Red Cross at Lyons

M. Edouard Herriot, mayor of Lyons, gave a dinner in honor of the commandant Marshall Hale, appointed director of the southern intermediate zone of the American Red Cross, of which Lyons is headquarters. The notables of the region were present at this dinner, also the United States consul. Marshall Hale stated that it was his intention to make Lyons a center of large activities, aiding in the most extensive way the numerous institutions and agencies now in operation. In the name of Lyons and the region, the mayor expressed his liveliest thanks to the speaker.

The Vacation Colonies

The Oeuvre des colonies de vacances was founded in 1882 by Mme. Edmond de Pressensé for the purpose of removing poor children from the pernicious surroundings of the large cities and giving them an opportunity to benefit from the clean, healthy atmosphere of the country, the mountains and the sea, strengthening them physically as well as morally (The Journal, Nov. 12, 1910, p. 1745). Since the beginning of the war, 22,000 children of both sexes, from 5 to 14 years of age, orphans, children of refugees or of men in the service, have benefited from this movement.

Japanese Red Cross Mission in France

The Japanese Red Cross has sent a commission to France to study the French Service de Santé and to convey to the French aid societies (*sociétés de secours*) the good wishes of our ally of the extreme Orient. This mission visited the principal formations of the Red Cross societies in Paris and then left for the front.

Red Cross Postage Stamps

According to the terms of an agreement with the *"administration des postes"* (postal authorities) of Belgium, England, Italy and Serbia, it has been decided that the stamps used in France for the benefit of the Red Cross may also be used for postage stamps on mail whose destination is the countries mentioned. Likewise, the Red Cross special postal stamps issued in these countries will be accepted as franking mail destined for France.

The War Blinded

A group of *aveugles de guerre* (war blinded) has issued a call to all soldiers who have sustained eye wounds, inviting them, as other classes of the maimed have done, to organize and found *syndicats professionnels* whose object will be to establish and maintain uniformity and cooperation between all the various agencies looking after the war blind and the schools engaged in their reeducation. Such an organization would be able to purchase raw materials at lower prices, and would also reduce the selling expense considerably.

Gift of Cuban Physicians to the War Medical Aid Fund

Prof. José A. Presno of Havana, Cuba, has sent to the Association des médecins de France, for its fund for *assistance confraternelle de guerre*, 7,000 francs contributed by physicians of Cuba, with a message stating that they wish to "reaffirm their admiration of the glorious Latin nation and their gratitude to French medical science, the most faithful guide and the best inspiration of all medical culture."

LONDON LETTER

London, Sept. 3, 1918.

Medical Students and the War

The effect of the war on the number of medical students has been described from time to time in previous letters. The approaching opening of a new medical session affords the opportunity of reviewing the present position. Before the war, in the years 1910-1914, the average annual entry of first year medical students was about 1,440. During the war the number of entries has been increased to about 2,000. Thus the number of students pursuing their curriculum in the medical schools has steadily increased. In May, 1916, the total was 6,103; in January, 1917, 6,682; in October, 1917, 7,048, and in May, 1918, 7,630. Notwithstanding this increase, the great withdrawal of students from the medical schools for combatant service or for service as surgeon probationer in the navy has resulted in a considerable deficiency in fourth and fifth year students, who can furnish only about three fourths of the yearly entry into the profession considered desirable to make up for the wastage. The numbers of medical students now studying are, for the various years: first year, 1,378; second year, 1,249; third year, 1,050; fourth year, 759; fifth year, 944. In 1920, when the present fourth year students are due to qualify, the deficiency of entries into the profession will be at its maximum. Another effect of the war is a great increase in the number of women students. Their percentage of the total is: first year, 32; second year, 33; third year, 32; fourth year, 27; fifth year, 18. Thus, although the percentage of women has remained almost constant during the four war years, it shows a considerable increase on the prewar figure, which corresponds to the fifth year students. The total number of physicians on the register is 43,819, which is thus distributed in the United Kingdom: England, 54 per cent.; Scotland, 32 per cent.; Ireland, 14 per cent. Urgent representations have been made to the government as to the threatened shortage of physicians due to the withdrawal of students for combatant service, a number of third year students have been allowed to return from active service to complete their studies, and students on their way to qualification, liable to be called to the colors, are being allowed to complete their studies. The minister of national service has undertaken to provide that if possible the number of students in training shall be kept at a level sufficient to give an annual yield of 1,000.

Tetanus Following the Subcutaneous Injection of Gelatin

The subcutaneous injection of gelatin is supposed to increase the coagulation of the blood and therefore has been used as a hemostatic and also to promote coagulation in aneurysms. For the latter object it was introduced in 1898 by two French workers, Lancereaux and Paulesco. But gelatin sometimes contains the spores of tetanus bacilli, and cases of tetanus have followed its subcutaneous injection. A case that occurred in a London hospital has just been the subject of a coroner's inquest. A man, aged 25, supposed to be suffering from typhoid fever, had severe intestinal hemorrhage for which 20 c.c. of gelatin (guaranteed to be sterilized for subcutaneous use) was injected into the left thigh. Five days later he began to complain of inability to open his mouth properly, and stiffness and pain in the muscles of the back of the neck and trunk. A typical attack of tetanus developed and proved fatal on the following day. The spasms notably affected the left thigh. The necropsy revealed intestinal typhoid ulcers, and a small abscess in the thigh, apparently at the site of the injection. From this Dr. Spilsbury, the medicolegal expert, who made the necropsy, obtained bacilli resembling those of tetanus. A verdict of death by misadventure due to tetanus was returned. Dr. Parkes Weber, under whose care the patient was, suggests the possibility that the bacilli might not have come from the gelatin but from an imperfectly sterilized syringe or by way of the ulcers from ingested food.

Marriages

Lieut. James Edward McDowell, M. C., U. S. Army, Philadelphia, on duty with the American Expeditionary Forces in France, to Miss Lillian Dauphney of Montreal, in London, June 18.

Lieut. James Eddy Arnold, M. C., U. S. Army, Miles City, Mont., to Miss Laina Louisina Laury of Louisville, Ky., September 7.

Capt. Oliver Linwood Stringfield, Jr., M. C., U. S. Army, Marshall, N. C., to Miss Lois Wood of New Canaan, Conn., August 28.

Lieut. Samuel Wilson McEwan, U. S. N. R. F., Cincinnati, to Miss Ethel Belle Allee, also of Cincinnati, September 11.

Clarence Albert Butler, Dell Rapids, S. D., to Miss Daisy Dean Carr of Marison, S. D., at Soiux Falls, S. D., July 11.

Lieut. Clayton Willard Eley, U. S. Navy, Detroit, to Miss Katie Brinkley of Suffolk, Va., September 11.

Frank Oscar Burk to Mrs. Anne Applegren, both of Davenport, Iowa, at Galesburg, Ill., September 6.

Josiah Shaftesbury Davies, Tacoma, Wash., to Miss Ruth E. Irle, at Jacksonville, Ore., September 11.

Thomas B. Horton, Curtis Bay, Md., to Mrs. Grace H. Norwood of Baltimore, September 21.

Irwin Wilson Voorhees to Miss Hazel Letitia Coleman, both of New York City, September 7.

John Joseph Burke to Miss Catherine F. Lynd, both of Schenectady, N. Y., September 14.

Grace Lynde Meigs, Washington, D. C., to Thomas Crowder, at Keokuk, Iowa, recently.

Walter J. Pellett, Manitowoc, Wis., to Miss Ellen Kikulski of Chicago, August 7.

Julian Herman Lewis to Miss Eva Overton, both of Chicago, September 4.

Eugene C. Hamley to Mrs. Alice Dyer, both of Pasco, Wash., in August.

Fraray Hale, Bridgeport, Conn., to Mrs. Mabel Camp Dorsey, recently.

Deaths

Col. Joseph Basil Girard, M. C., U. S. Army (retired), San Antonio, Texas; University of Michigan, Ann Arbor, 1867; aged 71; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; who entered the United States service as assistant surgeon in 1867; major and surgeon in 1888, lieutenant-colonel and deputy surgeon-general in 1901, and colonel and assistant surgeon-general in 1902; retired in 1910, on attaining the age of 64 years; was with General Crook in the Apache Campaign in 1873, and for nine years saw almost continuous service in Indian warfare; died at his home, August 25.

Major Walter Whitney, M. R. C., U. S. Army, Augusta, Ga.; Columbian College, Washington, D. C., 1872; aged 69; at one time a Fellow of the American Medical Association; a member of the Association of Military Surgeon of the United States; acting assistant surgeon, U. S. Army, from 1880 to 1890, and from 1898 to 1901, during which time he served in Indian campaigns in Arizona and New Mexico, and later in the Philippine Islands; prior to his Army service, Indian agency physician from 1875 to 1879, and from 1893 to 1896 an officer of the U. S. P. H. and M.-H. Service; since 1913 on duty at the Augusta Arsenal, Augusta, Ga.; died in that place, September 4, from heart disease.

Charles Barnsdall Parker, Cleveland; University of Wooster, Cleveland, 1877; M.R.C.S. (Eng.), 1880; aged 65; a Fellow of the American Medical Association; one of the founders of the Cleveland General, and St. Luke's hospitals, and visiting surgeon to St. John's Hospital; dean and professor of clinical surgery in Ohio Wesleyan University Medical School, Cleveland, from 1894 to 1898, and thereafter senior professor of clinical surgery in Western Reserve University, Cleveland; local surgeon of the Lake Shore and Michigan Southern Railroad; died at his summer home on Wooster Road, Rocky River, September 18, from heart disease.

Capt. William Burrows Hudson, M. R. C., U. S. Army, Washington, D. C.; George Washington University, Washington, D. C., 1905; aged 40; a Fellow of the American Medical Associaton; formerly major, M. C., N. G. D. C.; who went overseas in the autumn of 1917, in command of an ambulance company of the National Guard of the District of Columbia, incorporated in the Rainbow Division; while caring for the wounded on the western front in France, was instantly killed, August 1, by the explosion of a shell.

Edgar Miller Holmes, Boston; Harvard Medical School, 1895; aged 50; a Fellow of the American Medical Association; associate professor of otology and laryngology in Tuft's College Medical School, Boston; aural surgeon in the Boston City Hospital and Boston Dispensary; consulting aural surgeon to the Massachusetts Infants' Asylum; and ear, nose and throat surgeon at St. Elizabeth's Hospital; was drowned by the overturning of his canoe at Point Allerton, Mass., September 19.

Emerson K. Kellenberger, Yates Center, Kan.; Medical College of Ohio, Cincinnati, 1871; aged 68; a Fellow of the American Medical Association and president of the Woodson County Medical Society in 1914; for twenty years local surgeon of the Missouri Pacific Railway Company; for two years coroner of Franklin County, Kan., and secretary of the first board of medical examiners of his judicial district in Arkansas; died at his home, September 11, from cerebral hemorrhage.

William Pickard Megrail, Wheeling, W. Va.; Western Reserve University, Cleveland, 1888; aged 59; a Fellow of the American Medical Association; a specialist in obstetrics and diseases of children; local surgeon for the Baltimore and Ohio System, and the Wheeling Traction Company; a member for several years and president of the first branch of the Wheeling City Council; died at his home, September 30, from cerebral hemorrhage.

Charles Henry Norred, Minneapolis, Minn.; Jefferson Medical College, 1886; aged 76; a veteran of the Civil War, in which he served as surgeon in the Seventh Illinois Volunteer Cavalry; formerly medical director for the department of Minnesota of the Grand Army of the Republic; surgeon to the Soldiers' Home; died at the Battle Mountain Sanatorium, Hot Springs, S. D., September 16.

Robert Edward McCullough, Flint, Mich.; Starling Medical College, Columbus, Ohio, 1898; aged 50; a Fellow of the American Medical Association; while driving his motor car over a grade crossing over the Corunna Road, near Lansing, Mich., August 28, was struck by a passenger train and received injuries which caused his death a few minutes later.

Robert Jarvis Mitchell, Girard, Ill.; Rush Medical College, 1871; aged 74; a Fellow of the American Medical Association, and a charter member of the Macoupin County Medical Society, of which he was once president; for ten years president of the Girard board of education; died at his home, September 8.

Alfred Mahlon Bigelow, Mansfield, Mass.; Boston University School of Medicine, 1900; aged 55; also a graduate of Harvard Veterinary College; at one time town physician of Mansfield; died in the Massachusetts General Hospital, Boston, from adenocarcinoma of the sigmoid, July 30.

James E. T. Holiman, Little Rock, Ark.; College of Physicians and Surgeons, Little Rock, 1907; aged 51; a member of the Arkansas Medical Society; associate professor of theory and practice of medicine in his alma mater; died at his home, September 17, from cerebral hemorrhage.

John H. Demarest, White Plains, N. Y.; New York Homeopathic Medical College, New York City, 1865; aged 81; for thirty years a member of the staff of the Metropolitan Hospital, Blackwell's Island, and at one time president of the medical board; died at his home, September 14.

Lieut. Gordon Trevor Courtenay, U. S. N., San Diego, Calif.; Northwestern University Medical School, Chicago, 1908; aged 31; a Fellow of the American Medical Association; died in the New York Naval Hospital, September 23, from pneumonia following influenza.

Jacob Samuel Price, Beaumont, Texas; Tulane University, New Orleans, 1891; aged 53; a member of the State Medical Association of Texas; at one time a member of the state board of health; died in the Hotel Dieu, Beaumont, September 12, from heart disease.

Samuel Allan Lacock, Canonsburg, Pa.; Jefferson Medical College, 1877; aged 69; a member of the Medical Society of the State of Pennsylvania; postmaster and once burgess of Canonsburg; died in the West Penn Hospital, Pittsburgh, September 18.

Ralph Emerson Stevens, Marlboro, Mass.; Harvard Medical School, 1897; a member of the Massachusetts Medical Society; aged 48; for fifteen years chairman of the local board of health; died at his home, September 18, from uremia.

Julius Edward Block, Rembrandt, Iowa; Detroit College of Medicine and Surgery, 1904; aged 38; was found dead in his office, September 3. The coroner's verdict was that he died about August 28, from an overdose of intoxicants.

James Wallace Ford, Jr., Mount Carmel, Pa.; Hahnemann Medical College, Philadelphia, 1905; aged 37; a member of the Medical Society of the State of Pennsylvania; died in his office, September 17, from acute dilatation of the heart.

Albert Marvin Hutton, Kalamazoo, Mich.; Detroit Homeopathic Hospital, Detroit, 1905; aged 45; at one time a Fellow of the American Medical Association; died at the Fairmount Hospital, Kalamazoo, August 8, from diabetes.

Ross B. Rowe, Reading, Pa.; University of Pennsylvania, Philadelphia, 1885; aged 57; a member and once vice president of the staff of St. Joseph's Hospital, Reading; died at his home, September 20.

Mott Dwight Cannon, New York and Greenwich, Conn.; New York Homeopathic Medical College, New York City, 1882; aged 59; died suddenly at Poultney, Vt., September 21.

George Volney Bush, Dawson, Ala.; Southern Medical College, Atlanta, Ga., 1890; aged 49; died in Chattanooga, Tenn., August 18, a day after an operation for cholelithiasis.

Charles E. Smith, Colorado Springs, Colo.; Louisville (Ky.) Medical College, 1878; aged 63; also a druggist; died at his home, September 6.

Joseph T. Bright, Covington, Ky.; University of Pennsylvania, Philadelphia, 1866; aged 76; died at his home, September 3.

Francis A. Woodward, Springfield, Tenn.; University of Louisville, Ky., 1882; aged 60; died at his home, September 18.

John Barton Sanders, LaGrange, Ga.; a nongraduate practitioner since 1888; aged 55; died at his home, September 15.

Zachariah C. Myers, York, Pa.; University of Maryland, Baltimore, 1881; aged 59; died at his home, September 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MEDICAL SOCIETY OF THE UNITED STATES

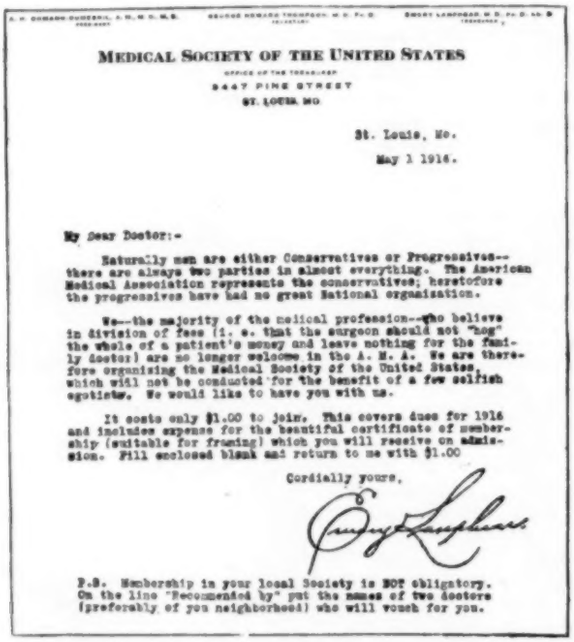
From "Division of Fees" to "Down With Autocracy"

The "Medical Society of the United States" has for its "Honorary President" one A. H. Ohmann-Dumesnil, A.M., M.D., M.E., Sc.D., Ph.D., and for its "Secretary and Treasurer" one Emory Lanphear, M.D., C.M., Ph.D., LL.D. As originally planned, the "society" seems to have been based on the idea of organizing the "fee-splitters." In May, 1916, the birth of the organization was announced to the medical profession through a letter signed Emory Lanphear, written on the stationery of the "Medical Society of the United States." Even in its embryonic state the society had A. H. Ohmann-Dumesnil, A.M., M.D., M.E., for its president, and Emory Lanphear, M.D., Ph.D., LL.D., as its treasurer. The letter read in part:

"We—the majority of the medical profession—who believe in division of fees (*i. e.*, that the surgeon should not 'hog' the whole of a patient's money and leave nothing for the family doctor), are no longer welcome in the A. M. A. We are therefore organizing the Medical Society of the United States, which will not be conducted for the benefit of a few selfish egotists. We would like to have you with us.

"It costs only $1.00 to join. This covers dues for 1916, and includes expense for the beautiful certificate of membership (suitable for framing), which you will receive on admission. Fill enclosed blank and return to me with $1.00."

But presumably the idea of organizing on a basis of "fee splitting" did not make a hit, so the lure was changed. Today physicians are approached with the plea that the "Medical Society of the United States" will make the medical world free for democracy; it is, we are assured, a "Society of Protest Against the Autocracy of the A. M. A.," and a "Society of Medical Democracy."



MEDICAL SOCIETY OF THE UNITED STATES
OFFICE OF THE TREASURER
3447 PINE STREET
ST. LOUIS, MO.

St. Louis, Mo.
May 1 1916.

My Dear Doctor:-

Naturally men are either Conservatives or Progressives--there are always two parties in almost everything. The American Medical Association represents the conservatives; heretofore the progressives have had no great National organization.

We--the majority of the medical profession--who believe in division of fees (i. e. that the surgeon should not "hog" the whole of a patient's money and leave nothing for the family doctor) are no longer welcome in the A. M. A. We are therefore organizing the Medical Society of the United States, which will not be conducted for the benefit of a few selfish egotists. We would like to have you with us.

It costs only $1.00 to join. This covers dues for 1916 and includes expense for the beautiful certificate of membership (suitable for framing) which you will receive on admission. Fill enclosed blank and return to me with $1.00

Cordially yours,

Emory Lanphear

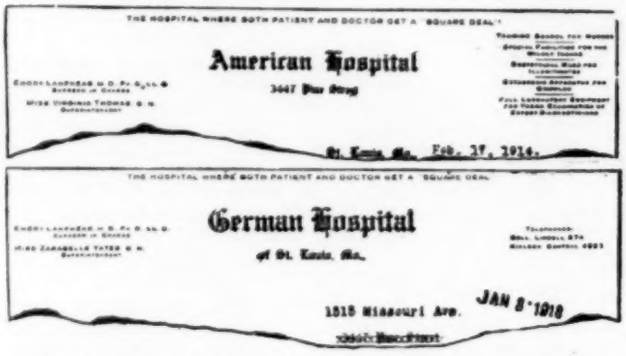
P.S. Membership in your local Society is NOT obligatory. On the line "Recommended by" put the names of two doctors (preferably of you neighborhood) who will vouch for you.

The "Medical Society of the United States," was originally organized on a basis of "fee-splitting," as is shown by the reduced facsimile of a letter sent broadcast in 1916, announcing the birth of the new "society." Apparently, "fee-splitting" as a rallying point did not bring in the desired returns, so today the "Medical Society of the United States" is alleged to be a "Society of Protest Against the Autocracy of the A. M. A."

Membership costs "only $1.00 . . . including the cost of a beautiful certificate of membership." No penalties or punishments are involved for belonging to other societies, and:

"Joining our body need not affect your membership in any other society—even the A. M. A., if you wish to belong to it, and be 'bossed' by the 'Simmons Gang'."

The dollar for the "beautiful certificate" and membership is solicited by means of circular letters signed "Emory Lanphear," coming from 3447 Pine St., St. Louis, Mo., the address of what has been variously called the "American Polyclinic," the "American Hospital," and later, the "German Hospital."



THE HOSPITAL WHERE BOTH PATIENT AND DOCTOR GET A SQUARE DEAL

American Hospital

3447 Pine Stree

St. Louis, Mo. Feb. 1st, 1916.

THE HOSPITAL WHERE BOTH PATIENT AND DOCTOR GET A SQUARE DEAL

German Hospital

of St. Louis, Mo.

1518 Missouri Ave. JAN 8 1918

Reduced facsimile of the letter-heads of an institution known variously as the "American Hospital" and the "German Hospital." The change in name from "American" to "German" seems to have taken place early in 1915—when things German were more popular and profitable than they are today!

man Hospital." The "Surgeon-in-Charge" of the "German Hospital" is Emory Lanphear, M.D., C.M., Ph.D., LL.D. When running under the name of the "American Hospital," Lanphear solicited operative work on a "division of fees" basis, which, the general practitioner was told, meant that "you are to have 40 per cent. of all fees received from your patients sent to our staff for operation or treatment."

With the change in name from "American Hospital," to "German Hospital," Lanphear appealed for a "portion of your operative work on a basis of pure reciprocity." This "pure reciprocity" seems to have been a still more liberal distribution of the patient's money, for from a 40 per cent. basis it was raised to an even fifty-fifty. Said Lanphear, in a letter sent out a few months ago:

"I wish also to inform you in spite of the despicable opposition of the hypocritical gang in charge of the A. M. A., and the no less contemptible action of the St. Louis Medical Society, I am going to remain in St. Louis and continue to do surgical work upon a 'division of fee' basis. To be more explicit, if you bring me a case for operation I shall allow you one half of the fee for your time, trouble, responsibility and help in the management of the case."

Before leaving the interesting professional personality of Lanphear, and carefully avoiding any details of a personal nature, we may remind our readers that as long ago as 1908 Lanphear was the "Dean" of the "Hippocratean College of Medicine," with A. H. Ohmann-Dumesnil, A.M., M.D., M.E., Sc.D., "Vice-Dean." At that time Lanphear sent out letters to physicians proposing the organization of a "Post Graduate Faculty" on the following basis:

"Those who hold full professorships shall purchase stock in the corporation to the amount of $1,000.00; those who become lecturers or instructors shall pay in the sum of $500.00; those who are to be merely clinical assistants will buy ten shares of stock, $100.00."

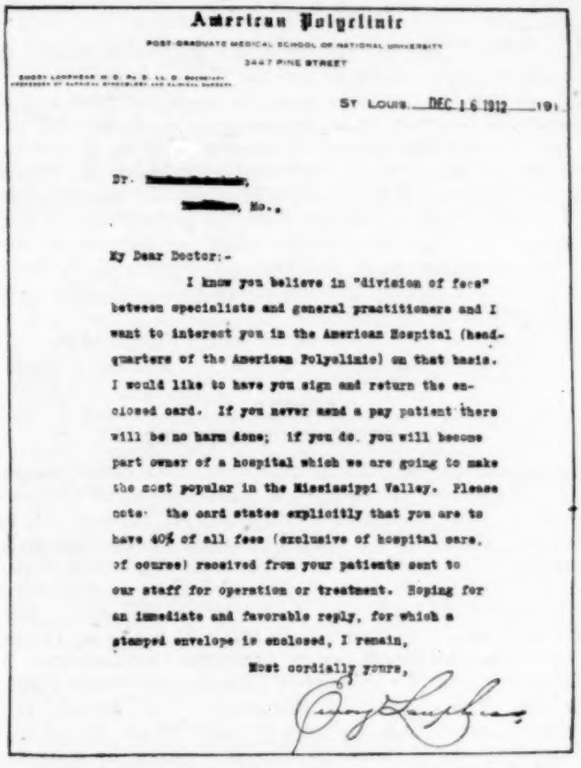
The "Hippocratean College" was a "sundown" affair; it never graduated a student, and expired in 1910.

But to come back to the "Society of Medical Democracy": the "Medical Society of the United States" seems to have been born in 1916. Its parents, so far as is apparent, seem to have been Lanphear and Ohmann-Dumesnil. The latter, it may be remembered, used to be the editor and proprietor of the *St. Louis Medical and Surgical Journal*, a publication so obviously venal, that its value to the nostrum makers, whose interests it espoused, must have been small. Advertising pages, "original articles" and "editorials"—all were used to puff nostrums of the crudest type. It was Ohmann-

Dumesnil and his journal that came to the defense of the "patent medicine" interests when they were so hard hit by Mr. Adams's "Great American Fraud" series. In commenting on this phase of "patent medicine" activities, *Collier's*, in January, 1907, said:

"Headache powders came in for a considerable share of attention in the patent medicine articles. There was much talk of libels among the headache powder makers, but they decided upon the safer methods of hiring a meretricious medical publication, the *St. Louis Medical and Surgical Journal*, to print an article in which the *Collier's* statements were branded as lies, and the *Collier's* editors and writers as liars and libelers. This article the Proprietary Association of America circulated in pamphlet form. The journal which printed it died a natural death a few weeks later. Its editor, one O. H. Ohmann-Dumesnil, has just appeared in the public prints in an unsavory connection with a corrupt lobbying project in St. Louis."

Some of the nostrums that Ohmann-Dumesnil has recommended are: "Sanmetto," "Gonosan," "Cactina Pillets," "Pepto-Mangan," "Satyria," "Campho-Phenique," "Tongaline," "Germiletum," "Narkogen," "Nosophen," "Mercauro," "Arsenauro," and "Hydrozone." Many of these testimonials were, of course, used by the manufacturers in their advertising "literature."



American Polyclinic

POST-GRADUATE MEDICAL SCHOOL OF NATIONAL UNIVERSITY

3447 PINE STREET

ST LOUIS DEC 16 1912 191

Dr. [redacted],

[redacted], Mo.,

My Dear Doctor:-

I know you believe in "division of fees" between specialists and general practitioners and I want to interest you in the American Hospital (headquarters of the American Polyclinic) on that basis. I would like to have you sign and return the enclosed card. If you never send a pay patient there will be no harm done; if you do, you will become part owner of a hospital which we are going to make the most popular in the Mississippi Valley. Please note: the card states explicitly that you are to have 40% of all fees (exclusive of hospital care, of course) received from your patients sent to our staff for operation or treatment. Hoping for an immediate and favorable reply, for which a stamped envelope is enclosed, I remain,

Most cordially yours,

Reduced facsimile of a letter sent out in 1912, soliciting the purchasing of stock in the "American Hospital" on a division of fee basis —forty-sixty!

At the time that the Medical Society of the United States was being organized—in 1916—there was published what purported to be a preliminary program of its first meeting. The meeting was held in St. Louis, and the program, while containing the names of men with special fads or interests to exploit, also contained the names of some men of standing. It appeared, however, on investigation, that at least some of the latter had but a hazy conception of the use to which their names were being put, and protested vigorously on learning the facts, repudiating the organization.

Now, in 1918, another drive is on for membership; letters signed "Emory Lanphear" are being sent to various selected groups of physicians. For example, the Eclectics are being coaxed by a letter which commences:

"We want every reputable Eclectic practitioner in this country to join our society of protest against the iniquities of the A. M. A."

An identical letter has been addressed to Homeopaths, the words "Homeopathic practitioner" being substituted for "Eclectic practitioners." In all of the letters the "beautiful certificate of membership" is emphasized, and the trivial cost —"only $1.00 a year"—is referred to, while the plea: "surely you are willing to help to that amount to 'down' the 'gang' in charge of the A. M. A.," is featured. Another group of letters has gone out to the graduates of the Barnes Medical College. This commences:

"Most graduates of 'Old Barnes' have joined our society of protest against the iniquities of the A. M. A. Why should you also not come in? It costs only $1.00 to become a member, including the cost of a beautiful certificate of membership."

Still another group appeal is based on sex; thus Lanphear:

"We want every reputable 'lady physician' in this country to join our society of protest against the iniquities of the A. M. A."

And yet another:

"You formerly belonged to the Tri-State Medical Society, of which I was Treasurer for 20 years. It is now dead. I wish you would join our new society which has superseded Tri-State in this territory."

With these various letters is enclosed a "preliminary program" of the 1918 meeting which is to be held October 8 and 9 in Chicago. As might be expected, many of the names on the program are characteristic of the organization and an interesting "story" might be made from the material in THE JOURNAL'S files on the individuals. Such names are of men, who, professionally speaking, range from faddists, who ride grotesque and bizarre medical hobbies, to those who with special interests to exploit and unable to use reputable medical organizations for that purpose, take refuge in such hybrid conglomerations as the Medical Society of the United States. Not that the program contains the names of crude quacks, or obvious medical swindlers. It is representative, rather, of that twilight zone of professionalism, the penumbra, in whose uncertain light it is difficult to distinguish between the unbalanced visionary, with a fad, and the more sinister near-quack, with a "scheme."

Correspondence

"REPORT OF A CASE OF PRIMARY TUBERCULOSIS OF FAUCIAL TONSILS"

To the Editor:—In THE JOURNAL, Sept. 21, 1918, p. 968, there appears a "Report of a Case of Primary Tuberculosis of the Faucial Tonsils" by Major Oertel and Captain Griot. Without going into the subject of primary tuberculosis of the faucial tonsils, I should like to call attention to the fact that the report is far from convincing. As a matter of fact, it is rather self-contradictory. From the physical examination it would appear that the patient in question was suffering from advanced tuberculosis of the larynx and pulmonary tuberculosis. The laryngeal condition would indicate disease of rather long standing. The lung signs, although limited, do not preclude the possibility of more extensive disease of long duration. The laboratory report by no means clinches the diagnosis and describes nothing characteristic. That the mucus recovered from the larynx showed the presence of tubercle bacilli would further indicate very conclusively the presence of advanced pulmonary and laryngeal tuberculosis. Then why a case of primary tuberculosis of the faucial tonsils? Perhaps the authors have some more conclusive evidence for their remarkable statement.

HERMAN SCHWATT, M.D., New York.

To the Editor:—In THE JOURNAL, September 21, there appeared a "Report of a Case of Primary Tuberculosis of the Faucial Tonsils" by Major T. E. Oertel and Capt. George A. Griot of Camp Logan, Texas. I am sure that on further study of this case the authors would not report it as one of primary tuberculosis of the faucial tonsils. That it was one of tuberculosis could not be questioned; but the history of the case, as given, would certainly lead us to class it as one of secondary tuberculosis following an infection in the lungs. The fact that the larynx and trachea showed such marked tuberculous changes would certainly preclude the possibility

of knowing which was the first to be affected. My observations do not lead me to believe in even primary tuberculosis of the larynx, and I am sure it would be difficult to find a case of primary tuberculosis of the tonsil. These remarks are in no wise a criticism but merely a plea for more accurate deductions.

DUNBAR ROY, M.D., Atlanta, Ga.

THE MEDICAL SECTION OF THE ADVISORY COMMISSION STILL BROADENING ITS FUNCTIONS

To the Editor:—According to the lay press, the chairman of the Medical Section of the Advisory Commission of the Council of National Defense has rushed in with the members of his Volunteer Medical Service Corps to take a hand in, if not to take charge of, the outbreak of influenza in the country. In Illinois, and I suppose in other states, he telegraphs his state chairman to appoint a committee to attend to the situation, and forthwith a committee for that purpose springs into existence.

What does this action mean? There are only two obvious answers. Either the usual constituted authorities for taking care of epidemics have failed, or the chairman of the Medical Section of the Advisory Commission is a sort of medical "all highest" in the United States, who is superior to all regular agencies and may step in when he sees fit.

We have for some time been accustomed to Colonel Martin's acting as though the Surgeon-Generals had to have some one to take over a considerable part of their functions in medical military affairs. But this excursion into administering the public health of the nation indicates a broadening of his self-appointed functions. Why this further assumption of authority? Have the usual federal, state and municipal authorities proved unequal to their duties? It is their specific function to take care of such situations. They are paid for it, and they have men especially trained for it. Has there been a breakdown in these agencies? Has Surgeon-General Blue gone in panic to Colonel Martin and appealed to him to help him out of a situation that the Public Health Service of the United States cannot handle for the country at large? Have the state boards of health and the municipal boards of health come crying to him for help or proved futile, that these new bodies should suddenly step in to assume their task, or show them how to do it, or without invitation to offer to help them do it?

There is no such crisis in the administration of our public health affairs. Even if there were such a crisis, is there any reason to believe that Colonel Martin is especially qualified to take care of the situation? He is not noted as a sanitarian, and the committees he appoints—if the Illinois committee is a sample—are not superior as sanitarians to our present regular officers. On his Illinois committee he interlards between busy practitioners the regular officers who ordinarily have charge of such work.

And one wonders how these officers feel about it. How do the Army and Navy and Public Health Service officers, the municipal and state health officers feel about sitting on these new committees suddenly formed to take over work that is usually up to them to do? I do not know how much open resentment there may be, but I think it would be hard to find a better illustration of mischievous meddling with other men's duties than this, or of actions tending more to confusion in the administration of public affairs and more to the lowering of the spirit of public officials.

If the newspaper publicity given to this action of Colonel Martin's—and the publicity was as great as usual and probably just as expensive—carries any implication to the public mind, it is that the usual authorities for looking after epidemics are unequal to their duty of taking care of this epidemic, and we must have a "god from the machine" come in to do it for them. This act, in fact, like Colonel Martin's attempt to force on the profession his Volunteer Medical Service Corps, is the act of one who apparently feels that he is a sort of national medical Pooh-Bah. The Medical Departments of the Army and Navy, the Office of the Provost Marshal-General, the Public Health Service, the offices of administration of state and local public health affairs—apparently all of these came within the scope of his functions—at least until the Provost Marshal-General announced last week that "membership in Volunteer Medical Service Corps is not service in the military establishment and does not therefore affect in any way the status of registrants before the Selective Service Boards."

It is a mischievous situation that Colonel Martin is forcing on us. The profession is confused by his actions. He has, I should estimate, sent probably a million letters to the profession under government frank about matters more or less connected with the war. Physicians do not know how authoritative these communications are. He has a way of writing—as he did in the case of his Volunteer Medical Service Corps, telling men to sign—as if he were clothed with federal authority to command, when, as a matter of fact, he is exploiting his own desires and plans; and physicians often do not know how much his communications represent federal authority and how much his own personal activities and views.

I am sure I sense the attitude of the profession when I say that its members are zealous in the highest degree to do all they can now for the public good, to know the wishes of the government in order to try to comply with them; that they accept instantly and without reservation—accept as orders—the communications of the Surgeon-Generals and the Provost Marshal-General. But—speaking now only for the profession of Chicago which I believe I know—a great many of them would prefer to get their orders and their instructions from the Surgeon-Generals of the Army, Navy, the U. S. Public Health Service and the Provost Marshal-General, who surely are competent to issue them.

WILLIAM ALLEN PUSEY, M.D.,
President of the Chicago Medical Society.

AN AUTHOR PROTESTS

To the Editor:—May I not thank you for the complimentary review of my book "Diet and Health with Key to the Calories" and at the same time take issue with your reviewer on the following points? He says: "By its title it assumes to be a parody on the guide of a well known religiomedical cult. This, however, appears only slightly in the text in the form of a few of the side headings." I fear he has missed the point that I have used their terminology throughout and my chapter of testimonies is a model of their literature. Furthermore, the reviewer says that the humor is a little forced. Again I differ with him. It is a great deal more than a little forced. It is very much forced, in fact almost forcibly forced. It has been killed, assassinated, annihilated, and dragged in most any place and any time. I did it purposely. Who reads an ordinary book on dietetics? Even a doctor will read mine!

LULU HUNT PETERS, Los Angeles.

Notification of Ophthalmia Neonatorum.—According to the *Medical Officer*, the local government board for Scotland has issued regulations under the public health act of 1897 for the compulsory notification of ophthalmia neonatorum in Scotland, dating from Nov. 1, 1918. Although no direct arrangement is made by the local government board for treating and following up these cases, it is pointed out that this follow-up work might properly come under the duties assigned to health visitors under the regulations relating to maternity service and child welfare, and that the child welfare grant is available for this purpose. It is therefore hoped by the board that the local authorities will avail themselves of this resource and see that all notified cases of ophthalmia neonatorum receive immediate treatment. The Royal Commission on Venereal Diseases reported that probably 25 per cent. of all cases of blindness are due to ophthalmia neonatorum, and that probably 50 per cent. of all blindness is due to the venereal diseases, syphilis being a prolific cause.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PRINTING OF HARRISON NARCOTIC REGISTRY NUMBER ON PRESCRIPTION BLANKS

To the Editor:—Some time ago I went to the expense of having 5,000 prescription blanks printed and bound containing my name and address, also my registration number under the Harrison Narcotic Law. My druggist informs me that when writing a narcotic prescription it is necessary for me to append under my signature my registry number, address and date, and that having the number and address printed on them will not comply with the law. Please let me know if he is correct.

Z. S. H., Kentucky.

ANSWER.—In the Harrison Narcotic Law and regulations issued by the Treasury Department as Internal Revenue Regulations No. 35, Section 2 B, it is stated that "such prescription shall be dated as of the date on which signed and shall be signed by the physician, dentist or veterinary surgeon who shall have issued the same." Article 11 of the regulations states that "drugs dispensed or distributed under and in pursuance of a written prescription issued by a physician, dentist, or veterinary surgeon duly registered under the act must show the name and address of the patient, the date, the name and address of the physician, and his registry number. . . . All prescriptions must be dated and signed on the date when issued." It is, therefore, necessary for the physician to write only the date and signature. The name, address and registry number may be printed on the prescription blank.

CALCIUM CHLORID ANTIFREEZE MIXTURE

To the Editor:—In Queries and Minor Notes (THE JOURNAL, Aug. 31, 1918, p. 768), in discussing the use of calcium chlorid solutions to prevent freezing in automobile radiators, you stated incidentally that such solutions have a harmful effect on the radiator, especially on seams and joints. The following amplification of the statement may be of interest to your readers:

At the temperatures in question, calcium chlorid solutions have a decidedly harmful effect on the radiator, not only on the seams and joints, but also on the whole metal surface. The effect is, of course, usually more apparent at the seams and joints. No one who has not studied this effect perhaps realizes the extent of the pitting and corrosion produced. The effect is, of course, produced through the appreciable hydrolysis of the salt in question at the boiling temperature.

Commercial antifreeze mixtures generally contain chiefly or wholly calcium chlorid or some substance as harmful in its effect. The only safe method is to employ an alcohol-water mixture, which is perfectly harmless. The extra trouble involved, through continual evaporation or expense difference, is more than compensated by the saving in possible radiator repairs.

STANLEY L. CHISHOLM, Washington, D. C.
Sergeant, First Class, Chemical Warfare Service, U. S. Army.

WAR BILLS OF PHYSICIANS

The following is a copy of a card sent to his patients by an Indiana physician about to go into military service:

"LIBERTY STATEMENT"

M.....

I am sending you this statement because I am expecting to leave soon and must ask that you call at once and settle your account. It is absolutely necessary that I collect all my outstanding accounts in order that I may meet my own financial obligations and make arrangements for my family during my absence in the Army.

I prefer to settle all accounts personally rather than leave them in the hands of an Agent or Attorney. I will expect to hear from you at an early date.

Respectfully,

.....

SUGAR TREATMENT OF TUBERCULOSIS

To the Editor:—Please give me some information concerning a tuberculosis cure called "Lo Monaco," which is being recommended here by the official Public Health Service. The substance comes in tablets to be dissolved, boiled and injected intramuscularly. I have been unable to get any information about the true nature of this remedy, and do not remember having read anything about it in THE JOURNAL.

M. P. COLMENARES, M.D., Orizaba, Vera Cruz, Mexico.

ANSWER.—A discussion of this subject appears in Queries and Minor Notes, THE JOURNAL, Sept. 28, 1918, p. 1063.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston, Mass.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Utah April Examination

Dr. G. F. Harding, corresponding secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 2-3, 1918. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	No. Licensed
Chicago College of Medicine and Surgery		(1917)	1
Western Reserve University		(1917)	1
Jefferson Medical College		(1917)	1
University of Pennsylvania		(1917)	1

Dr. Harding also reports that 2 candidates were licensed through reciprocity at the meeting held, April 5, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville		(1916)	Kentucky
Vanderbilt University		(1913)	New York

Maryland June Examination

Dr. J. McP. Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 18-22, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of 56 candidates examined, 51 passed and 5 failed. Eighteen candidates were licensed through reciprocity and one was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University (1917) 80; (1918) 76, 91, 92.			
Indiana University		(1917)	84
Johns Hopkins University (1914) 87; (1915) 90; (1917) 80, 82, 83, 84, 85, 86, 91; (1918) 80, 83, 83, 84, 84, 85, 86, 87, 87, 87, 88, 88, 88, 89, 89, 90, 91, 92, 92, 94.			
Maryland Medical College		(1904) 84; (1912)	83
University of Maryland (1916) 76, 82; (1917) 79; (1918) 75, 77, 78, 85, 85, 86, 87, 88, 91.			
New York Homeo. Med. College and Flower Hospital		(1918)	80
Hahnemann Med. College of Philadelphia		(1918)	85
Meharry Medical College		(1918)	92
	FAILED		
Howard University		(1918)	74
Johns Hopkins University		(1918)	71
Maryland Medical College		(1913)	*
Meharry Medical College		(1916)	65, *

*No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University		(1904)	Louisiana Dist. Colum.
Georgetown University		(1895)	W. Virginia

Atlanta Medical College	(1914)		Virginia
Bennett College of Eclectic Medicine and Surgery	(1886)		Illinois
Chicago College of Medicine and Surgery	(1914)		Missouri
Baltimore Medical College	(1908)	(1913)	W. Virginia
College of Physicians and Surgeons, Baltimore	(1885)		Colorado
			Virginia
Johns Hopkins University	(1914)		Penna.
Maryland Medical College	(1912)		Virginia
University of Maryland	(1915)		N. Carolina
Marion-Sims College of Medicine	(1897)		Missouri
Medical College of Virginia	(1900)	(1910)	Virginia
		(1911)	S. Carolina
University of Munich	(1900)		Dist. Colum.

Michigan June Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 11-13, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of 76 candidates examined, 75 passed and 1 failed. Twenty-nine candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Johns Hopkins University	(1918)	85.8
Detroit College of Medicine and Surgery (1918) 79.9, 80.9, 81.2.		
University of Michigan Homeo. Med. Sch. (1918) 82.2, 82.7, 83.1, 83.2, 84.1, 84.6, 85.6, 86.9, 87.5, 89.1, 89.2, 89.3, 89.3.		
University of Michigan Medical School (1918) 78.8, 80.7, 81.2, 81.3, 81.4, 81.7, 81.9, 81.9, 82, 82.1, 82.2, 83.1, 83.1, 83.2, 83.3, 83.3, 83.8, 83.9, 84.1, 84.1, 84.1, 84.4, 84.6, 84.8, 84.9, 85, 85, 85.1, 85.1, 85.2, 85.2, 85.3, 85.4, 85.4, 85.5, 85.5, 85.5, 85.7, 86, 86.2, 86.3, 86.4, 86.5, 86.6, 86.8, 86.8, 86.9, 87.2, 87.4, 87.8, 87.9, 88, 88, 88.3, 88.4, 88.8, 89, 89.4.		
Columbia University	(1918)	86.1*
FAILED		
University of Michigan Medical School	(1918)	*

*No grade given.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY FROM JAN. 31 TO AUG. 22, 1918		
University of Colorado	(1913)	Colorado
George Washington University	(1907)	Dist. Colum.
Bennett Coll. of Ecl. Med. and Surg. (1886) Texas;	(1894)	Illinois
Coll. of Phys. and Surgs., Chicago (1906) Indiana;	(1909)	Illinois
Northwestern University	(1908)	Nebraska
Rush Medical College	(1915) (1917)	Illinois
University of Illinois	(1906) (1912) (1916)	Illinois
Indiana University	(1917)	Indiana
Kentucky School of Medicine	(1905)	Kentucky
Kentucky University	(1900)	Kentucky
Louisville and Hospital Medical College	(1908)	W. Virginia
		Kentucky
Louisville Medical College	(1905)	Indiana
University of Louisville	(1908) (1916)	Kentucky
Johns Hopkins University	(1899) Illinois; (1917)	Maryland
University of Michigan Medical School	(1897) (1900)	Ohio
Medical College of Ohio	(1895)	Penna.
University of Pennsylvania	(1913)	Dist. Colum.
Woman's Medical College of Pennsylvania	(1895)	Penna.
Vanderbilt University	(1901)	Tennessee
University of St. Joseph, Beirut, Syria	(1903)	Iowa

Wisconsin June Examination

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the oral, practical and written examination held at Milwaukee, June 25-27, 1918. The examination covered 12 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 25 candidates examined, 24, including 2 osteopaths, passed and 1 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1916)	88.7
Chicago College of Med. and Surg.	(1915) 75, 77.6; (1916)	77.4
Northwestern University	(1918)	81.4
Rush Medical College (1916) 93.5; (1918)* 87, 89.5, 92.		
University of Illinois	(1917)	90.3
Baltimore University	(1903)	75.5
University of Michigan Medical School	(1898)	86.2
Washington University	(1918)	87.5
Jefferson Medical College	(1918)	82.4
Marquette University (1918) 79.6, 82.2, 82.5, 84, 84.1, 85.7, 90.5.		
National University, Athens	(1912)	75.8
FAILED		
Meharry Medical College	(1917)	66.4

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
American Medical Missionary College	(1901)	Illinois
Chicago Physiomedical Institute	(1887)	Illinois
Rush Medical College	(1897)	Minnesota
Tufts College Medical School	(1904)	Michigan

*Degrees for these three candidates withheld pending completion of hospital internship.

Book Notices

Biochemical Catalysts in Life and Industry. Proteolytic Enzymes. By Jean Effront, Professor in the New University and Director of the Institute of Fermentations of Brussels. Translated by Samuel C. Prescott, Professor of Industrial Microbiology, Massachusetts Institute of Technology, assisted by Charles S. Venable. Cloth. Price, $5. Pp. 752. New York: John Wiley & Sons, 1917.

This is a discussion of biochemical catalysts or enzymes for nitrogenous substances only. Though the greater part of the text deals with the enzymes for protein substances as found in the digestive secretions of the animal body, the proteases of animal and plant tissues and bacteria are likewise considered. A sixth of the book deals with the coagulating enzymes (thrombin, myosinase and rennet). The greater part discusses pepsin, the various trypsins and erepsins, and the amidases. One hundred and seventy-five pages are devoted to the use of the various enzymes in bread making, brewing, distilling, the manufacture of cheese, tanning, and in agriculture. The distribution, methods of preparation and mode of action of the various enzymes under different experimental conditions are fully and accurately considered. The excellence of the book on that score can hardly be questioned. It is gratifying, furthermore, to have at hand a ready reference book of small size in which the practical usefulness of the nitrogenous enzymes to industry is adequately considered. The parts of the book dealing with the mechanism of secretion of gastric and pancreatic juice are disappointing. Following Pawlow and his pupils, the author takes the view that the fasting stomach contains "very little juice normally." As a result of this erroneous conception, the importance of psychic or appetitic (nervous) juice is greatly overestimated. Gastric secretin or gastrin receives no mention. The physician will certainly find the parts of the book dealing with mechanical physiology quite fragmentary. It is to be regretted that the author did not incorporate the results of American research on sundry questions relating to the activity of the digestive glands. Although the study of the coagulation of the blood has been made the subject of a particularly important chapter "benefiting from recent acquisitions," not a single reference is made to the careful and interesting work of the American physiologist, Howell. The preliminary work of Howell's pupil, Rettger, is mentioned, but his publication is cited in the bibliography with a German title, although it is published in English. The important work of Howell himself (and his pupils) contained in ten or twelve original papers is not even alluded to.

Chemistry of Food and Nutrition. By Henry C. Sherman, Ph.D., Professor in Columbia University. Second edition. Cloth. Price, $2. Pp. 454, with 16 illustrations. New York: The Macmillan Company, 1918.

In the presentation of his theme the author discusses first the chemical nature and the nutritive functions of the substances that serve as sources of energy in nutrition; then the nutritive requirements in terms of energy; protein; the more prominent inorganic elements and the vitamins, and finally the bearing of the various factors of food value on the problems connected with the economic use of food. Such is the scope of a work that has deservedly reached a second edition and will in the years to come reach many more because of its logical and simple style, its accuracy, and its delightful presentation. Every physician who wishes to inform himself in a general way of the present status of our knowledge of the nutrition of man will find the book a short but invaluable and reliable text giving all essential facts. The excellent bibliography makes it readily possible to obtain information in greater detail on any desired topic. Whereas, most of the facts concerning the nutritional importance of proteins, carbohydrates and fats are found in other texts, the latter are wofully deficient in a discussion of the inorganic foodstuffs and in mineral metabolism (chlorin, sulphur, phosphorus, sodium, potassium, calcium, magnesium and iron). We know of no other book of moderate size that deals so thoroughly with these essentials to nutrition. Approximately 176 pages are devoted to the inorganic foodstuffs, and justly so; for, as the author reminds us ten of the fifteen elements,

or seven of the twelve that are essential in amounts sufficiently large to be measurable by present methods, must be furnished by some ingredients of the intake other than the simple proteins, carbohydrates and fats. In this discussion the element iodin is undeservedly slighted. The American physician will note with pride that the significant advances in metabolism and nutrition during the last decade or more have for the most part been made by American investigators. The book embodies the important results in this field of Lusk, Atwater, F. G. Benedict, Osborne, Mendel, Van Slyke, Folin, Hart, McCollum, Chittenden, Du Bois, Forbes and Sherman himself. There is no excuse for any physician to remain unfamiliar with the important and interesting work of these men, when their work is presented comprehensively and yet most interestingly in a volume of moderate size and small cost.

THE HODGEN WIRE CRADLE EXTENSION SUSPENSION SPLINT. The Exemplification of This Splint with Other Helpful Appliances in the Treatment of Fractures and Wounds of the Extremities and Its Application in Both Civil and War Practice. By Frank G. Nifong, M.D., F.A.C.S. With an introduction by Harvey G. Mudd, M.D., F.A.C.S. Cloth. Price, $3. Pp. 162, with 124 illustrations. St. Louis: C. V. Mosby Company, 1918.

This book describes the methods of application and uses of the Hodgen extension and suspension splint. This splint, it is pointed out in the historical introduction, was described by Professor Hodge at the time of the Civil War as a modification of the Nathan R. Smith anterior splint for fractures of the thigh. The author discusses the general mechanism of fractures of the femur, splints for immobility and extension, splints for immobility and suspension, splints for immobility, extension and suspension, and the Hodgen extension suspension splint. The final chapter is devoted to the use of accessory appliances. It is a practical little book.

A TEXT-BOOK OF ELEMENTARY MILITARY HYGIENE AND SANITATION. By Frank R. Keefer, A.M., M.D., Colonel, Medical Corps, United States Army. Second edition. Cloth. Price, $1.75 net. Pp. 340, with illustrations. Philadelphia: W. B. Saunders Company, 1918.

Colonel Keefer's textbook was prepared primarily for the instruction of cadets at the United States Military Academy at West Point, and is adapted chiefly for the uses of the officer of the line rather than for the medical officer. Since the first edition was issued in 1914, the new type of warfare has necessitated considerable changes in this book, particularly the problems of trench sanitation. These problems are considered in a special chapter. The book is brief yet complete, and written in plain language so as to be readily understood by any man qualified to hold the rank of officer in our army.

MILITARY SURGERY OF THE ZONE OF THE ADVANCE. By George de Tarnowsky, M.D., F.A.C.S., Major, M. C., U. S. R. Leather. Price, $1.50. Pp. 330, with illustrations. Medical War Manual No. 7. Philadelphia: Lea & Febiger, 1918

The author's foreword modestly states that this is not a textbook on military surgery, but a vade mecum on the treatment of war wounds. But the difference between this and a textbook is that theories and nonessentials are here omitted, and that essentials are concisely presented. It is a practical, complete handbook for the Army surgeon on the transportation and management of the wounded and the methods of treatment that have been tried out and found satisfactory in the Allied armies during the four years of the war. It is based on personal observation by the author on the French, British and Italian fronts; hence it is up to date and represents the methods and procedures of today.

The first six chapters are devoted to a general description of the terrain of the French and British zone of advance, including description of first-aid station, transportation equipment, regimental-aid, station, field hospital, etc. In separate chapters are described the bacteriology of war wounds, traumatic shock, tetanus, gas bacillus gangrene, spinal injuries, burns, gas poisoning, the Carrel-Dakin technic; wounds of the face and neck, of the thorax, of the abdomen, of the bladder and external genitalia, of peripheral nerves, of soft tissues. In fact, the whole field of surgery, so far as it might be met in war work, is covered. While condensation and conciseness in statements evidently have governed the author, at the same time, this has not hindered the giving of the necessary details for a clear understanding of the subject discussed. The purpose has been to have a large amount of material in a small space; hence the page is full—there is no padding, no waste margin at the top, bottom or sides, and no leading. The book is printed on thin paper, and while it contains 330 pages it can easily be carried in the pocket.

Medicolegal

Husband Liable for Medical Services Only Not Shown Bound by Payment

(Vaughan v. Mansfield (Mass.), 118 N. E. R. 652)

The Supreme Judicial Court of Massachusetts, in sustaining exceptions to a verdict for the plaintiff, says that it was not in dispute that the medical services for which the plaintiff sought compensation were required by, and were rendered to, the wife and minor child of the defendant as claimed. The evidence warranted a finding that the defendant had seen the plaintiff at the defendant's house and that he knew the visits there were made by the plaintiff, as a physician, in response to calls from the wife of the defendant. There was also evidence that the plaintiff had sent bills from time to time to the defendant's residence, through the mail. There was no evidence that the defendant ever had forbidden the plaintiff to render, or the wife or child in the presence of the plaintiff to receive, the services of the plaintiff, on his account. It followed that a charge in this regard to the jury was sufficiently favorable to the defendant, which was that "a husband is required to furnish the necessaries to his wife and minor child, and he is liable for the necessaries furnished to his wife and child when they live with him, and if the plaintiff's services were necessary to the defendant's wife and minor child, the defendant would be liable for their reasonable cost." And this disposed of the exception of the defendant to a refusal to rule that "the defendant was not liable to the plaintiff for this bill, even if it was for necessaries furnished to his wife and minor child, unless the defendant refused or failed or neglected to furnish them himself."

Under these circumstances the presumption of the agency of the wife, which is inferred from her relation to her husband as manager of the household, to pledge her husband's credit for medical services that are reasonably necessary for her or the family, was not rebutted by proof that the defendant privately had instructed his wife never to run any bills, and had given her money from time to time to pay all expenses when she told him she needed it.

But, in answer to the defense that the action was barred by the statute of limitations, the plaintiff merely testified that "he had received a payment of five dollars" on account in July, 1908. He offered no evidence to prove that the payment was made by the defendant, by the wife of the defendant, or by any one who had authority to act for the defendant. The court is of the opinion that this testimony went no farther than proof of payment by a stranger, and was insufficient as evidence for a jury to find an acknowledgement on the part of the defendant of a subsisting liability; and the court thinks that the jury should have been so instructed.

What Is an "Accident" or "Accidental"

(Lickleider v. Iowa State Traveling Men's Association (Ia.), 166 N. W. R. 363)

The Supreme Court of Iowa says that one thing at least is well settled: The words "accident" and "accidental" have never acquired any technical meaning in law, and when used in an insurance contract they are to be construed and considered according to the common speech and common usage of people generally. Hundreds of attempts have been made by the courts to define these words in other terms, and while some of them may be regarded helpful so far as they adhere to popular usage, others have served only to confuse the situation, if not in fact grossly to mislead. Certain it is

that no attempt in this direction is in any respect an improvement on the definition found in our standard lexicons. It is an event from an unknown cause or an unexpected event from a known cause; a thing done or disaster caused without design or intention; an unusual and unexpected result attending the performance of a usual or necessary act.

There is, however, another alleged definition which has had a degree of judicial sanction which ought not to be passed without notice. According to this definition, an injury happening to an insured person through his own voluntary act is not an accident, nor is his hurt to be attributed to accidental means—a proposition that is wholly at variance with every statement of the true rule. It may be, and it is true, that if the insured does a voluntary act, the natural, usual and to be expected result of which is to bring injury on himself, then a death so occurring is not an accident in any sense of the word, legal or colloquial, and it is only when thus limited that the rule so stated has any proper application. It makes no difference whether the injured man or some other person voluntarily sets in motion the first of a series of events which in connected line of causation results in his injury or death. If the resulting injury and violence to him "unexpectedly took place," or was "an unexpected result from a known cause," or was produced "without design or intention," or was "an unusual and unexpected result attending the performance of a usual or necessary act," or was an "event happening without the concurrence of the will of the person by whose agency it was caused," or if it was "caused or produced without design," it falls directly within the letter and spirit of the definition that has been placed on the words by the most competent lexicographers as well as by our most eminent jurists who have given the matter attention.

In this case a holder of a policy or certificate of accident insurance issued by the defendant, in attempting to remove an automobile tire which for some reason resisted his efforts, knelt on one knee, took hold of the casing with both hands, pulling and jerking at it for some time, when it came off with a snap and such suddenness as to cause him to slip or stagger back with the tire in his hands. He immediately turned pale, complained of being very ill, put his hand to his head, and lay down on the ground. Help was called, but he died about an hour later. A postmortem examination was made of the body by three physicians, who found that the immediate cause of death was a blood clot in the right coronary artery near the heart. Two of the physicians attributed the death to arteriosclerosis, while the third found no more arteriosclerosis than is usual with a man of such size and age. The court holds that a case was made on which the plaintiff was entitled to go to the jury, and that it was error to direct a verdict for the defendant. If the arteries of the insured were sclerotic, but the sclerosis was only such as is the natural or usual accompaniment of increasing years, the fact, if it was a fact, that a bodily injury sustained by him would more likely be fatal than would be the case if such condition did not exist would not prevent a recovery on the policy should it otherwise appear that the injury was of the nature or kind described in the contract.

Liability for Malpractice in Performing an Illegal Operation

(Lembo v. Donnell (Maine), 103 Atl. R. 11)

The Supreme Judicial Court of Maine, in overruling exceptions to a ruling that overruled a general demurrer filed by the defendant, says that this was what is termed an action on the case brought to recover damages against the defendant, a physician, for malpractice while performing an operation to procure an abortion on the plaintiff, and for unskilled treatment subsequent to the operation. The basis of the defendant's exceptions lay in his position that as the plaintiff consented to the operation she could not recover damages because the operation was an illegal one. In a similar case, *Miller* v. *Bayer*, 94 Wis. 123, 68 N. W. 869, the court said:

> It is further contended that plaintiff cannot recover, because she submitted to the operation performed on her. Such is not the law. Consent by one person to allow another to perform an unlawful act on such person does not constitute a defense to an action to recover the actual damages which such person thereby received.

This court agrees that this statement of the law is correct.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
Delaware State Medical Society, Wilmington, Oct. 8.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Eighth Annual Meeting, held at Louisville, Sept. 4-6, 1918

The President, DR. J. S. LOCK, Maysville, in the Chair

Diagnosis of Gastric and Duodenal Ulcer

DR. J. A. SWEENEY, Louisville: Other and older methods must not be discarded for the roentgen ray although it is of great value in demonstrating the size, location, and character of the ulcerations.

The operator with the greatest experience in stomach surgery and surgical pathology, is more likely to interpret correctly that which he encounters in the gastric area, than one who has had less experience, which, no doubt, accounts for the very large number of ulcers diagnosed by some surgeons, as compared to others, and the varying statistics as to the frequency of the ulcer.

DISCUSSION

DR. C. W. DOWDEN, Louisville: There is only one method by which gastric and duodenal ulcer can be diagnosed positively, and that is roentgenography. There are absolutely no symptoms that might be referred to a gastric or duodenal ulcer that cannot come from disease of the pancreas, the gallbladder, or even the appendix. While I may diagnose pyloric obstruction, I always reserve the right to say that the trouble may be due to an ulcer, to disease of the gallbladder or appendix. In a number of instances pyloric obstruction may be present with little defect of the pylorus or duodenum, and at operation no ulcer is found; but there is a diseased gallbladder with or without stones, or possibly dense adhesions which disturb the normal contour of the duodenum, and which present difficulties in diagnosis.

SYMPOSIUM ON CHRONIC INTERSTITIAL NEPHRITIS

Etiology

DR. F. H. CLARKE, Lexington: I believe clinicians agree with Rosenstein that in the great majority of cases of primary chronic interstitial nephritis, the genuine contracted kidney, the cause is unknown. Heredity and age doubtless play a prominent part. There is considerable evidence of an hereditary tendency or susceptibility to kidney disease. I have noticed this in my own experience. It is generally conceded that the active cause or causes of chronic nephritis are in the blood; that the blood contains the toxic material which may produce the morbid changes in the kidneys. Probably the same toxic agents, when present in the blood in large quantities, may produce a rapid and severe toxemia which terminates in an acute inflammation. When present in less quantity and acting slowly these toxins may bring about a chronic nephritis without the acute stage. Aside from its hereditary influence, syphilis does not often have an active part in causing contracted kidney directly. Its influence in causing arteriosclerosis makes it prominent in the related type of nephritis, but the other forms are rarely directly produced by it. Gout is said to be a common cause of chronic nephritis, and English physicians put special stress on it as a cause of chronic interstitial nephritis.

Cardiovascular Changes

DR. B. C. FRAZIER, Louisville: Often cardiovascular changes are not observed for a long time after the onset

of persistent albuminuria. It is of special importance in cases of chronic or even acute albuminuria to look for vascular changes, especially in the middle-aged and elderly, and noting the blood pressure. From a diagnostic point, cardiovascular changes in nephritis are of as much importance as the study of the urine. It is very difficult, especially in the late stages of chronic interstitial nephritis, to decide whether it is primarily a heart or a kidney case. Increase of heart size varies. At first there may be only enlargement of the left ventricle mainly with apex displacement downward and to the left. Later, there is often enlargement of the right ventricle, with the apex impulse diffused and heaving. In more advanced cases, a presystolic murmur is often present. The peripheral vessels are hard and tortuous. A tortuous and plainly visible temporal artery is good evidence of underlying renal disease.

Many of the phenomena of chronic interstitial nephritis are explained by uremia. These toxic symptoms may be mild and of long standing, or they may be of sudden onset, the severe headache and convulsion coming without warning, frequently followed by fatal coma, an acute uremia. Inspection is frequently all that is needed to make one suspect malignancy or a chronic and rapidly developing nephritis with vascular changes.

Symptom Complex

DR. R. HAYES DAVIS, Louisville: In the early part of the disease the only changes noted are an increase in blood pressure and hypertrophy of the heart, involving only the left ventricle at first. The extent of these changes is variable. The blood pressure may be nearly normal or only slightly elevated or it may be quite high, and the heart shows hypertrophy varying from only a slight enlargement with an increase of the first sound and a slight accentuation of the aortic sound to an actual ox-heart. As the disease advances these changes gradually become more marked, and if the patient is destined to progress along the cardiac route, he will sooner or later develop the symptoms of dilatation which occur as a result of an overworked heart muscle degenerated on account of coronary sclerosis and fatigued from its efforts to force the blood through inelastic arteries against a high blood pressure, or handicapped by diseased valves. The symptoms of dilatation progress from slight irregularities, and dyspnea on exertion with dizziness and digestive disturbances, etc., to the extreme forms of cardiac failure with marked dyspnea, weak heart, edema, and all the other distressing symptoms. Uremia may manifest itself as a chronic form of intoxication or as an acute overwhelming toxemia. The so-called chronic forms of uremia are most common. Perhaps, the most frequent symptom is headache. This may be slight or very intense, in some cases resembling migrain. Chronic headaches beginning in individuals past middle life, or migrain attacks that grow worse instead of better, should be looked on with suspicion. Digestive disturbances are frequent. Vomiting may be typically centric in origin and may resemble the vomiting of brain tumor. Various forms of transient paralyses often occur, involving the face, the tongue or one or more extremities. They are usually of very short duration.

Laboratory Findings and Their Value

DR. C. W. DOWDEN, Louisville: Fluid retention (persistent), with nocturia and fixation of specific gravity offers the simplest and most trustworthy evidence of potential nephritis and its correction will prevent actual disease. Nephritis is manifested further by (a) an increase in the constant Ambard or the index of McLean; (b) retention of nitrogenous products in the blood, first of uric acid, second of urea, and third of creatinin, as the process progresses; (c) a low excretion of phenolsulphonephthalein, generally, or excretion above 80 per cent. with other evidences; (d) hypertension, in the interstitial type particularly until the myocardium fails. Diagnosis is possible in 100 per cent. of cases if all these methods are employed. Prognosis of death in two months is possible in 100 per cent. of cases with creatinin retention of 5 mg. or more per hundred c.c. of blood.

Cardiovascular Changes; Medical Management

DR. J. A. FLEXNER, Louisville: The origin of the vascular, cardiac and renal changes which mark the earliest stages of this condition lies in some infectious process, either acute or chronic. The kidneys are the great emunctory organs for the chemicotoxic products which result from the bacterial destruction of tissues as the result of infectious processes; there is scarcely an infection of any severity which does not have an albuminuria and other evidences of destructive processes in the kidney accompanying it. These toxic substances are carried to these organs by the blood stream, hence we can understand the damage done to the vessels, and especially the renal vessels by reason of the concentration of the poisons in the kidney. In the management of these cases elimination of infectious processes is the first step in treatment. Conserve the reserves of function left in these organs, so that no organ will be overstrained or given a load to carry for which it has been rendered unfit. By living well within their physiologic resources many of these patients may have long and useful lives.

DISCUSSION ON SYMPOSIUM ON NEPHRITIS

DR. FRANK W. FLEISCHAKER, Louisville: Physicians speak of chronic parenchymatous nephritis and chronic interstitial nephritis, but the pathologist says we are dealing with a large, white kidney, or a secondarily contracted kidney, or with a gouty kidney or an arteriosclerotic kidney, or a senile kidney. But that makes little difference if we know what we mean by chronic interstitial nephritis in contradistinction to chronic parenchymatous nephritis. That is all that is necessary. We understand the production of it. When we think of chronic interstitial nephritis we at the same time think of cardiac changes. It is not of much moment whether the pathology of the heart or the pathology of the kidney is primary. They seem to go hand in hand and physicians speak of these cases as cardiorenal.

As to the prognosis and treatment, it does not make much difference whether one or the other originated first; we take the symptoms as they come for the treatment.

DR. C. I. SHERMAN, Millwood: Suppose the specific gravity of a certain urine is 1.010; we examine the urine again and find it still 1.010, and so on for a number of times. Then, suppose we increase the proteids and decrease the liquids but the specific gravity still remains 1.010. That kidney may be able to excrete a certain amount of urine if you take away the liquids and increase the solids. I think that is what the essayist means by a fixed specific gravity. That is one of the early symptoms. We all ought to employ the phenolsulphonephthalein test.

DR. JOHN R. MORRISON, Louisville: We know that infectious diseases are often the foundation for nephritis. We should also consider focal infection that comes from the teeth, the tonsils, the sinuses and the prostate. The prostate is often overlooked. It may be the source of infection and the cause of back pressure on the kidneys. In such cases, when the back pressure on the kidneys has been relieved, the symptoms of chronic interstitial nephritis often clear up.

DR. C. W. DOWDEN: Dr. Sherman misunderstood me in regard to the question of fluid retention being one of the early signs of nephritis. As a matter of fact, in interstitial nephritis or compensated nephritis, the output of fluid is in excess of the intake because, owing to lack of concentrative power, nature calls on the kidney for a greater output to make up the deficiency. In the later stages of interstitial nephritis and nephritis, when the burden of the kidney is transferred to the heart and myocardium, parenchymatous nephritis and retention of all nitrogenous products appear. This means myocardial failure. Low specific gravity means that the kidney is doing its work all right in interstitial nephritis, but fixation of a high specific gravity means a congested kidney, or in the later stages when the myocardium fails it is of doubtful significance.

Focal Infection from a Dental Standpoint

DR. RAYMOND GRANT, Louisville: I cannot condemn too emphatically the practice of physicians who advise patients

to have all their teeth removed, simply because it is recognized that some of them may have to be sacrificed. Where there is a focus of infection in any of the anterior teeth, it is possible to effect a cure in a great majority of instances either by the therapeutic action of drugs or by surgical procedures.

Hyperthyroidism: A Clinical Study

Dr. W. F. Boggess, Louisville: Close watching and careful analysis of a large number of persistent tachycardias, without any perceptible increase in the size of the thyroid gland, but with persistent disturbances of metabolism, loss of strength, increased nervousness, will unearth a large number of unsuspected atypical hyperthyroideas with the cardiovascular symptoms remaining in the ascendency. The treatment of the thyrotoxicosis is not the treatment of the heart or any one distressing symptom, but the treatment of the condition in its entirety. Find the focal infection, if it exists, and remove it.

After thorough study and diagnosis of these atypical cases, the results of medical treatment are very favorable. From 70 to 90 per cent. of the patients can be relieved and cured. I do not desire to minimize in the slightest, the wonderful results of surgery, and the necessity of surgery in many cases of exophthalmic goiter, but I do want to emphasize the fact that these cases should be recognized early, and that proper treatment should be instituted early, and the patients prevented from coming to the surgical stage. Do not postpone surgical intervention until the general musculature, as well as the cardiac muscle, has been degenerated to such a point that even surgery fails.

Uterine Prolapse with Cystocele

Dr. John R. Wathen, Louisville: The Watkins operation of interposition of the bladder, consists of placing the bladder so that it rests on the posterior surface of the uterus, and the uterus is fixed to the anterior vaginal wall, acting as a buffer against any descent of the bladder. The uterus is fixed in a position from which it can never retrovert or markedly descend or prolapse; for retroversion is the first step in the development of a marked ptosis or prolapse of the uterus. The best results from this operation are obtained in cases where there is a firm uterus of average size. The brilliant results obtained from this operation cause me to feel that the general practitioners and the surgeon should have a better appreciation of its possibilities and merits.

DISCUSSION

Dr. W. Barrow, Lexington: I have had experience with this operation in over forty cases, twenty-three of which were my own, and of that twenty-three there was a cure effected in twenty-one. In one of the cases I operated a second time and found tuberculous peritonitis. I suppose that is the reason why the uterus did not hold. There are two or three things about the operation that are important. First, complete separation of the bladder. If you separate the bladder incompletely you will have little pockets that are adherent to the uterus when you attempt to operate through the abdomen, and these will cause a marked cystitis which it is difficult to cure. It is necessary to curet the uterus. These uteri are usually large and subinvoluted, practically always retroverted, and curettement stimulates the return of the uterus to the natural size. I think it is also necessary to amputate the cervix even though it is short.

Hemorrhage in the Common Nose and Throat Operations

Dr. S. G. Darney, Louisville: The fear of hemorrhage need very rarely deter us from operating about the nose and throat. In plethoric adults, especially those of short neck and heavy build, it is well to give the chlorid or lactate of calcium a few days before operating. If this is not practicable, a half grain of emetin given hypodermically or pituitary extract may be administered just before the operation. In all cases it is wise to see that the patient is free from any recent acute inflammation, is in good condition and that the bowels are open. To obtain the full effect of epinephrin and cocain in the nose, a pledget of cotton soaked in these solutions should be left in situ for from half an hour to an hour. Nasal plugging is undesirable, and except for temporary purposes while operating under general anesthesia, it is not often necessary. When plugging is done, the packs, and especially the posterior ones, should never be left in place more than twenty-four hours. Of the internal measures to control nose and throat hemorrhage, morphin and atropin are among the most valuable drugs. If a spurting vessel is seen after a tonsil operation, it should be caught in the artery forceps, and, if necessary, torsion practiced. Ligation is rarely called for. If the hemorrhage comes from persistent oozing, as observed after retracting the anterior pillar and carefully examining the fossa, pressure either with the gauze on the forefinger or by means of a sponge, will usually arrest it. A hot sponge may be more valuable and especially one dipped in a hot solution of calcium chlorid or a 5 per cent. solution of gelatin in normal saline. If the hemorrhage is severe, sewing the anterior and posterior pillars together, possibly with a little piece of gauze between them, may be called for. Postoperative hemorrhage is often manifested by the vomiting of blood. When the blood appears fresh and red it would indicate that the bleeding is still going on, but it is well to remember that vomited blood seems far more than it is and the pallor and exhaustion may be due to nausea. In rare instances, it may be necessary to return the patient to the operating room and under general anesthesia search for the bleeding spot and use some of the surgical procedures mentioned, giving at the same time, if very urgent, a subcutaneous injection of epinephrin in normal saline and remembering that cases are reported where ligation of the carotid has been called for.

DISCUSSION

Dr. W. B. McClure, Lexington: No operation should be done on the throat following an acute inflammation of this region. The only fatality I have any knowledge of followed a tonsillectomy in which there was an acute inflammation of the tonsils. These hemorrhages are frequently due to the fact that in the operation we wound the pillars and thus produced a bleeding surface. In my own experience in tonsillar work I have never yet had to return a patient to the operating room for a second anesthesia, and I have rarely met with cases in which the bleeding was not controlled by pressure.

Dr. J. G. Carpenter, Stanford: These hemorrhages generally occur in the hyperplastic tonsil, unless the patient is a bleeder. By compression with forceps and a little torsion or ligation you can control the hemorrhage. In addition to tannic acid and gallic acid, you will find antipyrin, 15 grains to the ounce, a wonderful local hemostatic in tonsillar, throat and nasal surgery.

Dr. M. F. Coombs, Louisville: No menstruating woman should be operated on; we should wait until the period is over, at least ten days, before operating. A most excellent hemostatic is hot alum water.

Dr. Cowley, Berea: Local anesthesia for tonsil work has taken away almost all the terrors of hemorrhage for me. I have not had a case of hemorrhage since I have used local anesthesia, and I have done two operations on children 7 years of age under local anesthesia. A local anesthetic gives one a chance to see what he is doing.

Traumatic Injuries of the Chest

Dr. W. L. Gambill, Jenkins: The treatment is expectant unless infection, hemorrhage or respiratory embarrassment threaten life. The patient should be placed in a position of greatest comfort and ease of respiration. Shock should be treated by heat, stimulants, pituitary extract, epinephrin and, if severe, by intravenous salines or hypodermoclysis. In case of injury to the pleura or lung, adhesive plaster strapping affords marked relief. Aspiration may be necessary in pneumothorax or hemothorax if respiration is seriously embarrassed. Should empyema develop, thoracotomy and drainage must be instituted.

Aside from contusions, wounds of the chest may be of all types, and are inflicted by blunt objects, machinery accidents,

explosions, knives, bullets, glass, spikes, nails, swordlike pieces of timber in saw mill accidents, and the bits of mine machines. Nonpenetrating wounds are not particularly grave. Hemorrhage is generally slight unless an intercostal, the internal mammary or a branch from the axilla is severed. Of course, they, as other wounds of the body, are subject to the dangers of infection. Muscles may be severed and nerves, especially the anterior and posterior thoracic, causing a paralysis of serratus and pectoral muscles. These should be sutured immediately.

The treatment is the same as in wounds of other parts of the body, control of hemorrhage, disinfection by iodin, removal of foreign bodies, sutures, if necessary, and drainage. Penetrating wounds of the chest may be of the most varying character, from the slightest perforation to the most severe lacerations by machinery. Their gravity depends on, first, the amount of hemorrhage, and, second, on the amount of air and especially of any foreign or septic material introduced. Penetrating injury of the heart demanding surgical treatment is most often the result of stab wounds.

Drainage in Surgery of the Chest

DR. GEORGE A. HENDON, Louisville: The means adopted for the accomplishment of drainage in a general way are careful hemostasis, accurate approximation and perfect asepsis. When these three objects are arranged the necessity for drainage no longer exists. They may be accomplished, first, by careful ligation of blood vessels; second, obliteration of dead spaces with the use of buried sutures and surgical cleanliness in the superlative degree. The first of these requirements is the easiest, the third is possible if contamination has not preceded the surgeon. The second (the obliteration of dead space) is the only one of the three which seems at the present time to be beyond the range of surgical possibility and occupies the most important consideration in chest surgery. To avoid the necessity of using a foreign body for the drainage of a space that cannot be obliterated the following measures may be adopted: Occupying the space by a medium in which micro-organisms will not grow, therefore eliminating the necessity of drainage.

Wounds and Injuries of the Rectum and Anorectal Region

DR. BERNARD ASMAN, Louisville: The clinical manifestations induced by anorectal wounds and injuries vary according to the instrument which inflicted the trauma, the extent of the damage to the tissues, the anatomic situation involved, the time which has elapsed between infliction of the injury and observation of the patient, and also the nature of the wound, i. e., whether contused, lacerated or perforating in character. The higher lesions are the most serious because of the likelihood of pelvic and abdominal complication. Contusions and lacerations are attended by less clinical danger than perforating and punctured wounds; the former are more likely to be superficial than the latter and adequate drainage can be more readily secured. The most dangerous type of injury is rectal or colonic rupture which permits the escape of blood, gas feces and pathogenic micro-organisms into the pelvic or abdominal cavity, the most logical result being the supervention of infection with the production of peritonitis, abscess, or fecal fistula. Even superficial wounds may result disastrously provided drainage is inadequate and infection with tissue sloughing ensues. However, if surgical treatment be instituted promptly and rigid asepsis maintained infection of clean wounds should not occur.

Where the surgeon has reason for believing the injury extends to the upper rectal segment, the sigmoid or colon, immediate celiotomy is indicated as a diagnostic measure, and at the same time to permit the necessary reparative procedures. The extent of the damage inflicted on the lower rectal segment and the anal canal may be easily determined by ocular inspection.

The treatment of anorectal wounds and injuries is primarily and essentially surgical, and the technic of reparative measures must be modified to meet the indications in each individual instance. The operative steps necessary will depend on the location, nature and extent of the damage inflicted.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

August, 1918, **16**, No. 8

1 *System of Orthopedic Instruction. R. W. Lovett, Boston.—p. 483.
2 School of Clinical Military Orthopedic Surgery, Camp Greenleaf, Fort Oglethorpe, Ga. E. S. Geist, Fort Oglethorpe, Ga.—p. 488.
3 Treatment of Fracture of Neck of Femur. F. H. Albee, New York.—p. 493.
4 *Pathology of Peripheral Nerves in Gunshot Wounds. S. M. Cone. —p. 509.
5 *Primary and Delayed Primary Suture in Treatment of War Fractures. W. S. Baer.—p. 513.
6 Foot Problems and Treatment with Unseasoned Troops. C. B. Francisco.—p. 520.
7 Case of Congenital Anterior Subluxation of Tibia. L. Mayer, New York.—p. 521.
8 *Foot Prophylaxis in Soldier. J. T. Rugh.—p. 529.

1. **System of Orthopedic Instruction.**—The scheme Lovett presents can best be summarized by a concrete instance. The deformities of rickets can be taught in one of two ways: one is to describe knock-knee, its cause, mechanical production and treatment, and then do the same for bow legs and coxa vara, which is a good way and the usual one. The other way is to teach about bone, its growth and ossification, to tell of bone disturbances, the most frequent of which is a certain disturbance of ossification called rickets; that this process causes softening, and that bending thus occurs according to the mechanical influences in the case, perhaps in one direction, perhaps in another; that there may be an inward, outward or forward deformity of the leg; that ossification must be brought to normal by diet and hygiene; do not operate until this has happened. Meanwhile, treat by braces or manipulation. Thus one links up rickets with other disturbances of ossification, achondroplasia and the like. In the latter method Lovett believes that the man will have received more education than in the former.

4. **Pathology of Peripheral Nerves in Gunshot Wounds.**—Cone examined specimens from about 200 cases of war injuries of peripheral nerves. The patients were soldiers who, having had serious wounds by shell or bullet, in which soft parts and bone, as well as nerves, were torn or cut, came for repair of the nerves months after the original injury. The original wound had generally healed, yet it was considered advisable to wait until the lapse of six months after the injury before operating on the nerve; a few of the patients were brought to the operating table earlier, but many were not operated on for a year or more after injury. Many of the old healed sinuses suffer serious infection if operated on before the lapse of six months. In a few cases examination of material from the depths of the old wound shows masses of small round cells with few bacteria; some grow staphylococci on culture; others are negative. Many of the nerve trunks examined present masses of small round cells among the fibers; a few contain polymorphonuclear leukocytes. The vascularity is invariably greatly increased, new capillary vessels and full grown arteries and veins being found in all cases throughout the specimens. The fibrous scar between the nerve ends contains young nerves in 90 per cent. of cases. The increase of connective tissue is seen along the fibers some distance from the point of severance. Mixed with it is a proliferation of young nerves intertwining with capillary vessels among the old nerve fibers. This neuritis Weir Mitchell and Tinel say is often due to hemorrhage into the nerve.

Cone has never failed to find nerves in painful scars. The peripheral portion of a severed nerve contains axis cylinders in 86 per cent. of observations. The new connective tissue within, between and around injured nerves is most commonly wavy and vascular, often cellular, seldom dense. Nerve tendrils grow about foreign bodies such as khaki, hair and sutures. They grow well in granulation tissue. Fat is a better medium for nerve growth than is muscle. Nerves grow into fascia lata when used as a covering. Cargile membrane is impervious to nerve growth. A stretched nerve shows

active growth of young tendrils. Circular constricting scars are particularly damaging. Young nerves grow wildly, most prolifically, and are hard to keep from growing. Pain may be caused by this great proliferation.

5. **Primary Suture in Treatment of War Fractures.**—Baer says that the primary suture is the method of selection in the treatment of these cases when this can be done. Experience has shown that primary suture may be performed successfully in 80 to 90 per cent. of the cases. In certain cases primary suture cannot be done, owing to the inability to make a closure due to the destruction of large amounts of tissue, including skin. But even here the primary suture at times may be accomplished by the aid of a skin flap. Technic of primary suture: Disinfection of skin with iodin, soap, water and a scrubbing, or other methods. Removal of skin edge, together with the tract made by the projectile. Removal of all projectiles and of all devitalized tissue. The securing of complete hemostasis. The accurate approximation of skin edge without tension. The time limit for primary suture is generally regarded as being within the first twelve hours, but in face cases the time limit for successful primary suture is slightly increased.

Ten per cent. of battle casualties, even when they have arrived at the hospital within the first twelve hours, cannot be closed primarily, and mainly for the following reasons: Cases in which the shock is so great that the patients cannot stand the operation within the first twelve hours; deep wounds, where the complete excision of all devitalized tissue is uncertain or impossible; wounds wherein no roentgenogram being present, the projectile cannot be extracted; wounds where the loss of substance is so great that complete closure is impossible, etc. Of the primary sutures, 5 to 10 per cent. are not successful, and this is due mainly to streptococcus.

In an evacuation hospital, all wounds which are received within the proper time after injury, and which are applicable to primary suture, are closed by this method. At the same time, cultures of the wounds are taken. The wounds that must be opened immediately on the bacteriologic report are those primarily infected with the virulent types of streptococci. A bacteriologic report of other organisms does not in the main disturb the surgeon. Mechanical sterilization by the operative procedure of primary suture, together with the action of the human tissue, takes care of all other organisms, particularly when in pure culture. The virulent streptococci, generally by themselves, and always when associated with other organisms, such as streptococcus, enterococcus, the gas gangrene group, etc., demand immediate opening of the primary suture. The delayed primary suture is the method of wound closure which has been adopted in all those cases in which primary suture would have been done except for circumstances, generally of military character, which made it inadvisable.

The technic of delayed primary suture is exactly that of primary suture, except that the skin is not closed, and a dry, sterile dressing is placed over the wound. The skin edge is brought together from three to eleven days later.

All primary sutures should be kept at the place of operation for at least ten days, so that the wound may be watched and not subjected to the traumatism in transportation. Therefore, where patients must be removed immediately, within six or seven hours after operation, delayed primary suture takes the place of primary suture. This method of procedure has been found eminently successful. The delayed primary sutures are sent to the rear within six or seven hours after the initial operation, and are closed preferably on the second, third or fourth day. The percentage of cures in delayed primary sutures is between 80 and 87 per cent. This method allows the beds at the front to be continuously utilized, and adds to the rapidity of recovery over the former methods. Baer urges the necessity for the early treatment of bone injuries, by primary or delayed primary suture, as this is the keynote to the successful handling of war fractures.

8. **Foot Prophylaxis in Soldier.**—Rugh states that if a careful foot examination were made by a competent orthopedic surgeon, when the soldier is first inducted into service and proper remedial measures outlined and instituted for such conditions, fully 90 per cent. of the foot inefficients could be eliminated. This plan, however, has not been feasible thus far. Four factors stand out in the solution of the problem of foot prophylaxis, each of them capable of thwarting all efforts and of preventing success. These four factors, in order of their importance are: (*a*) the feet, (*b*) the shoes, (*c*) the officers, and (*d*) the soldiers—though experience shows that they are of almost equal significance. (*a*) The feet present all types and conditions. (*b*) The shoe question has been solved by Colonel Munson, as 98 per cent. of the men's feet can be satisfactorily fitted with this shoe. (*c*) The officers in charge of the men are held responsible for the proper fitting of the shoes, instruction of the men in care of the feet, etc. (*d*) The man is the fourth factor in foot prophylaxis. His pride in his foot dress not infrequently makes him unwilling to wear the regulation shoe, and especially when a sufficiently large shoe is fitted to him. Again, whether he is an enlisted or drafted man influences very much his feeling toward possible foot disability. The one serves voluntarily in most cases, and the other involuntarily, and there very readily develops in the latter a mental state which exaggerates a slight ache or pain into an absolutely disabling condition.

From the orthopedic standpoint, the prophylactic measures that have proved most potent in foot prophylaxis are four: 1. The detection of the potentially weak cases. 2. One of the most important measures is the restoration of the balance to the foot by proper alteration of the shoe. 3. After training follows in the problem of reclamation, and the first essential is that of proper walking and standing. 4. Exercises for the restoration of muscle power are the follow-up for protection and corrective work in foot cases. Other prophylactic methods are to be used as they may be indicated and whenever opportunity offers, but after shoes have been properly fitted and altered, the above are probably the most important ones to use. First problem: Inspection of the feet of the new recruit should be accomplished in the casual detachment or the depot brigade, where he is first quartered on entering service. Second problem: When the recruit is transferred to a National Guard or Regular Army camp, he may be sent directly to his organization or to quarantine barracks. If to the latter, the feet should be inspected and proper remedial correction made before he reaches his final station, and proper entry of this correction should be made on his records, so that future change in shoes may also receive the same attention. Third problem: Intensive inspections, if done in a regiment, are always arranged for through the regimental surgeon, and through him with the regimental commander. There is practically no trouble in obtaining this if its purpose is explained to the colonel and major. Great care should also be used to interfere as little as possible with the ordinary work of the organization, and a regular schedule for the inspection should be made out and followed closely. After a little practice one can inspect from 150 to 175 men in an hour. Fourth problem: The installation of cobbling and alteration outfits. Fifth problem: The securing of cobblers for work in the camp repair shop. The most satisfactory results obtain from asking assignment of several men (preferably cobblers or shoemakers) from an organization for temporary duty in the camp shoe repair shop, and then to arrange for their instruction in shoe repair and alteration work. After six to eight weeks of work, they should be returned to their organization and several sent from other units to take their place for similar instruction. During this time these men have been working efficiently in the shop, have learned the trade for practical purposes, and are still a part of their original organization, and are available for cobbling work in overseas service. Commanders will allow temporary assignment but not transfer, and when the economic phase is placed before the commanding general or chief of staff, they readily cooperate. Sixth problem: The care of cases of foot disability should rest with the regimental surgeon. Seventh problem: Experience in camp work quickly shows the orthopedic surgeon that he must work out his own problems and allow others to do the same.

Boston Medical and Surgical Journal

Sept. 5, 1918, **179**, No. 10

9 *Diagnosis of Fracture of Hip. G. W. Gay, Boston.—p. 315.
10 Obstruction of Small Intestine. J. T. Bottomley, Boston.—p. 316.
11 Is It Worth While for Man of Fifty to Get Into Physical Condition? J. M. Taylor, Philadelphia.—p. 324.
12 The Prostatic—How Shall He Be Managed? F. B. Sweet, Springfield.—p. 332.
13 Radical Cure of Hernia under Local Anesthesia; Combined with Scopolamin and Morphin. J. H. Cunningham, Jr., Boston.—p. 336.

9. **Diagnosis of Fracture of Hip.**—Given these three symptoms—disability, eversion of foot and pain on manipulation—Gay says, that the diagnosis is reasonably certain in all injuries to the hip. The older the victims, the more reliance can be placed on them. Shortening of the injured limb is almost always present, but it is less readily determined than are the above mentioned cardinal symptoms. Slight shortening, that is, not exceeding half an inch, is not always detected, especially in stout persons. In some cases only an expert can detect any difference in the length of the limbs. While unmistakable shortening is a valuable symptom of fracture of the hip, yet it is not as readily detected as are other conditions. Crepitus is usually absent in impacted fractures, depending of course, on the degree of impaction. This symptom is not to be sought too curiously. The manipulations should be gentle and intelligent. The diagnosis can be made satisfactorily without this symptom. Other comparative symptoms of hip fractures are Nélaton's and Bryant's lines, designed to show the relative elevations of the top of the great trochanters on the two sides. The comparative tension of the fascia lata above the trochanters is also a sign of some significance. The only dislocation of the hip that presents the same, or a similar clinical picture as a fracture, is the displacement forward. This dislocation is so extremely uncommon that most physicians have never seen a case. The most common errors in diagnosis in hip injuries are in calling them sprains and contusions.

California State Journal of Medicine, San Francisco

September, 1918, **16**, No. 9

14 Children's Year—Opportunity in Preventive Medicine. A. Brown, San Francisco.—p. 414.
15 Plastic Surgery of Nose and Ears. G. Selfridge, San Francisco.—p. 416.
16 Social Problems of War. H. G. Irvine and W. M. Dickie, San Francisco.—p. 423.
17 Analysis of First Two Hundred Cases Studied at San Diego Diagnostic Group Clinic. B. J. O'Neill and R. Pollock, San Diego.—p. 428.
18 Intestinal Obstruction. H. Shoemaker, Los Angeles.—p. 430.
19 Clinical Aspects of Fasting Treatment of Diabetes. A. H. Rowe, Oakland.—p. 433.

Canadian Medical Association Journal, Toronto

September, 1918, **8**, No. 9

20 Combined Inquiry into Presence of Diphtheria and Diphtheroid Bacilli in Open Wounds. J. G. Adami, and others.—p. 769.
21 Cancer Problem. C. H. Mayo, Rochester; Minn.—p. 786.
22 Sociologic and Economic Aspects of Tuberculosis. J. S. Wright, Edmonton, Alberta.—p. 791.
23 Returned Soldier. W. T. Connell, Kingston.—p. 797.
24 Treatment of Infected Wounds with Dichloramin-T with Special Reference to Its Advantages over Carrel-Dakin Method. H. W. Baker, Toronto.—p. 805.
25 Cerebrospinal Syphilis. G. S. Mundie and R. J. Erickson, Montreal.—p. 824.

Journal of Parasitology, Urbana, Ill.

June, 1918, **4**, No. 4

26 Experiments on Extrusion of Polar Filaments of Cnidosporidian Spores. R. Kudo, New York.—p. 141.
27 Two New Cystocercous Cercariae from North America. E. C. Faust, Urbana.—p. 148.
28 Tick as Possible Agent in Collocation of Eggs of Dermatobia Hominis. L. H. Dunn, Ancon, C. Z.—p. 154.
29 New Gregarines from Coleoptera. M. W. Kamm, Urbana.—p. 159.
30 Centrorhynchus Pinguis N. Sp. from China. H. J. Van Cleave.—p. 164.
31 Cultivation of Trichomonas Intestinalis. M. F. Boyd, Galveston, Texas.—p. 168.
32 Adaptability of Schistosome Larvae to New Hosts. W. W. Cort, San Francisco.—p. 171.
33 Parasitism of Carboniferous Crinoids. R. L. Moodie, Chicago.—p. 174.

Medical Record, New York

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34 Superior Longitudinal Sinus in Infants; Its Value in Transfusion and for Rapid Medication. L. Fischer, New York.—p. 399.
35 Patent Foramen Ovale and Its Relation to Certain Cardiac Murmurs. W. F. R. Phillips, Charleston, S. C.—p. 402.
36 Significance of Early Lesions. J. L. Heffron, Syracuse.—p. 404.
37 *Fifty Cases of Tuberculosis, Mainly Osseous and Glandular, Treated with Tuberculin, Contrasted with Fifty Cases Treated without Tuberculin. R. C. Newton, and S. A. Twinch, Newark, N. J.—p. 407.
38 Drug Treatment of Nervous Exhaustion. B. Robinson, New York.—p. 410.
39 Relating to Factors That May Cause Rheumatic Conditions. J. M. W. Kitchen, East Orange, N. J.—p. 411.
40 Apothesin and Epinephrin Anesthesia in Removal of Tonsils. J. Coleman, New York.—p. 413.

Sept. 14, 1918, **94**, No. 11

41 Blood Cholesterol. A. J. P. Pacini, New York.—p. 441.
42 Neurons; Their Relation to Therapeutics, Medical and Mechanical. D. Graham, Boston.—p. 447.
43 Value of Wassermann Reaction. R. A. Lambert, M. P. Olmstead and H. C. Stuart, New York.—p. 452.
44 Gastro-Intestinal Headaches. J. R. Verbrycke, Jr., Washington, D. C.—p. 454.
45 Retropharyngeal Abscess in Infants. A. N. Schiller, New York.—p. 457.

37. **Tuberculosis, Osseous and Glandular, Treated with Tuberculin, Contrasted with Cases Treated Without Tuberculin.**—With a few exceptions these patients were children, inmates of a home for crippled children and patients in a hospital clinic. Without tuberculin 16 recovered, or 32 per cent.; 25 died, or 50 per cent.; 9 are still wearing braces and under treatment, or 18 per cent. With tuberculin 33 recovered, or 66 per cent.; 5 much improved, or 10 per cent.; 6 died, or 12 per cent.; 5 still under treatment, or 10 per cent.; 1 discontinued treatment, or 2 per cent. Of the 16 cured without tuberculin the average period treatment for each case was five and a fourth years. Of the 33 cures with tuberculin the average period of treatment for each case was eleven and a half months. Of the 25 deaths without tuberculin the whole period of treatment was seventy-two years, eleven months, nine days, or three years, fourteen days for each patient. Of the 6 deaths of those treated with tuberculin the total period of treatment was four years, nine months, and twenty-nine days, or an average of nine months, thirteen days for each patient. Of those treated without tuberculin, 9 are still under treatment. Of those treated with tuberculin 5 are still under treatment.

Mental Hygiene, Concord, N. H.

July, 1918, **2**, No. 3

46 *Care and Disposition of Military Insane. P. Bailey.—p. 345.
47 Survey of War Neuropsychiatry. C. S. Read.—p. 359.
48 Mental Hygiene and Social Work; Course in Social Psychiatry for Social Workers. E. E. Southard, Boston.—p. 388.
49 *Mental Disease in Field. M. A. Harrington.—p. 407.
50 Community Responsibilities in Treatment of Mental Disorders. W. L. Russell, White Plains, N. Y.—p. 416.
51 Organization of State Hospital for Mental Disease. H. D. Singer.—p. 426.
52 Supervision of Feebleminded in Community. J. Taft, New York.—p. 434.
53 Next Step in Treatment of Girl and Women Offenders. J. D. Hodder, Framingham, Mass.—p. 443.
54 Character as Integral Mentality Function. G. G. Fernald.—p. 448.

46. **Care of Military Insane.**—Does Army life make men insane? The question is especially important in a warfare which involves the whole nation as bearing on the economic value of psychiatric examinations. Bailey says that so far as epilepsy and mental deficiency are concerned, the present statistics do not throw much light. While camp conditions might easily, and as a matter of fact often do, give rise to nervous episodes in the mentally deficient, they have nothing to do with the underlying cause. The same may be said of epilepsy. The frequency of attacks in epileptics may be increased after entering the Army, but figures so far obtained do not justify the assumption that a potential epileptic under peace conditions is converted into an actual one by Army life. But the matter is quite different with the psychoneuroses, constitutional psychopathic states and dementia praecox. It seems that even in the training camps any of these conditions may become active and conspicuous through the requirements of military service when they had not manifested themselves

to a degree to be incapacitating in civil life. It is not believed that this conversion of a potential psychosis into an actual one in the camps is a result of hardship or physical causes. It is believed rather to be a psychologic result from disharmony with new and rigid conditions which the neurotic, who is so intensely individualistic, finds it impossible to adapt himself to and so breaks down. This explanation holds true for those who have volunteered quite as much as for those who have been drafted.

So far as the expeditionary forces are concerned, the time has not yet come to explain the method of production of psychoses. Most of the wounded so far returned had departed for France before the neuropsychiatric examinations had been established. Among them there is a percentage of nervous and mental disease of twenty-five, a percentage that seems destined to decrease as the figures more and more concern the examined Army. Experience indicates that a pronounced psychopathic constitution and military service are antagonistic. It is believed, on the other hand, that psychoneurotics who might render excellent service in their civil capacity, become incapacitated by the change in their habits of living however patriotically they may have sought it. It is also believed that the Army fares better without them.

49. **Mental Disease in the Field.**—Harrington was regimental officer with the British Expeditionary Force in France for a year, he had an opportunity to see a fairly large number of mental and nervous cases; and although, unlike physicians serving in base hospitals, he had no opportunity to make a careful study of his cases, he had a better opportunity to observe the conditions under which they developed and the practical problems which they presented to the military organization. Harrington is convinced that in the cases resulting from war strain there is little if anything that is really new. Emotional shock, fatigue, etc., the various etiologic factors which give rise to war psychoses, are all found operating in civil life; and as for the psychoses themselves, there is probably nothing in their symptomatology that cannot be duplicated in the ordinary psychiatric clinic of any large city. The difference between peace conditions and war conditions and the mental disturbances resulting from each, is not a qualitative difference, but a quantitative one. Under peace conditions, for example, men are subjected to emotional shocks in no way essentially different from those produced by shell fire. But under peace conditions these shocks are of rather rare occurrence, and as a rule so mild as to affect only those who are mentally unstable. Under war conditions, however, they are of constant occurrence, and frequently so severe as to affect the strongest and best balanced of men. Thus etiologic factors and types of mental disorder to which formerly little attention was given have, with the altered conditions produced by the war suddenly forced attention; and as a result there has been a tendency to treat of them as if they were something altogether new.

Michigan State Medical Society Journal, Grand Rapids

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55 Acute Abdomen. F. G. Connell, Oshkosh, Wis.—p. 349.
56 Group Medicine—Development of Private Pay Clinic. A. W. Blain, Detroit.—p. 354.
57 Case of Lipodystrophia Progressiva. B. N. Epler, Kalamazoo. —p. 356.
58 Report of Case of Situs Inversus. W. O. Upson, Battle Creek. —p. 362.
59 Cardiac Conditions That Do Not Disqualify for Army Service. C. H. Johnston, Grand Rapids.—p. 363.
60 Dental Anomalies. C. J. Lyons, Ann Arbor.—p. 370.
61 Lymphatic Disease in Children. H. deB. Barss, Ann Arbor.—p. 374.

Missouri State Medical Association Journal, St. Louis

September, 1918, **15,** No. 9

62 *Can We Disregard Calendar in Setting the Date for Labor? F. T. Van Eman, Kansas City.—p. 315.
63 Prevention of Deformities in Time of Peace and War. B. Belove, Kansas City.—p. 317.
64 Treatment of Vulvovaginitis in Children. E. C. Sage, St. Louis. —p. 319.
65 Chronic Progressive Chorea in Negro; Report of Case. F. M. Barnes, Jr., and E. Hein, St. Louis.—p. 324.

62. Abstracted in The Journal, June 15, 1918, p. 1889.

New York Medical Journal

Sept. 7, 1918, **108,** No. 10

66 Ovary: Corpus Luteum. O. T. Osborne, New Haven, Conn.—p. 401. To be continued.
67 Modern Treatment of Syphilis. P. Goldfader, New York.—p. 405.
68 Visceroptosis; Its Diagnostic Importance. I. R. Kuhn, Fallsburgh, and J. Glass, New York.—p. 409.
69 *New Dressing for Wounds. A. Kahn, New York.—p. 411.
70 Retropharyngeal Abscess; Report of Three Cases. J. J. Levbarg, New York.—p. 417.
71 Nasopharyngeal Polypi. A. E. Pohly, New York.—p. 418.
72 Mobilizing the Spas and Health Resorts of the Nation. N. P. Norman, Fort Leavenworth, Kan.—p. 419. To be continued.

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73 Relative Value of Pasteurized and Certified Milk. S. S. Cohen, Philadelphia.—p. 445.
74 Ovary: Corpus Luteum. O. T. Osborne, New Haven, Conn.—p. 447.
75 Toxic Nonexophthalmic Goiter. E. H. Reede, Washington, D. C. —p. 452.
76 Papillary Cystadenoma of Ovary. J. Corcia, New York.—p. 457.
77 *Food Value of Candy. J. E. Leikauf, New York.—p. 458.
78 Painless Meatotomy. L. L. Michel, New York.—p. 461.
79 Two New French Methods for Staining Blood Films and Blood Parasites. L. Tribondeau, Corfu, France.—p. 461.
80 Mobilizing Spas and Health Resorts of the Nation. N. P. Norman, Fort Leavenworth, Kan.—p. 463. To be concluded.

69. **New Dressing for Wounds.**—The material used by Kahn for an internal dressing or drain and for an external absorptive dressing, either wet or dry, is blotting paper prepared in a variety of ways; and as an external binder to take the place of the cloth roll or bandage, punctured paper adhesive on one side for binding it over the dressing or wound. This adhesive roll last mentioned can be variously medicated and used over surfaces much as ordinary adhesive plaster or mustard plaster. The wound is prepared for dressing much as any wound is prepared, the difference being that instead of using gauze and cotton as a drain, Kahn uses blotting paper, corrugated, thin, and in strips, as a drain; and blotting paper crumpled up in the hand as an external dressing. The blotting paper may be reinforced with a little gauze, or with a cloth roll bandage over the blotting paper, or a binder of the corrugated, punctured, adhesive paper may be used. The paper dressing makes a light, airy and inexpensive dressing, it is easily removed, and is more readily destroyed than a cloth dressing.

77. **Food Value of Candy.**—Candy being composed principally of sugar, chocolate and nuts, is very high in food value, and the different kinds vary in the proportion of carbohydrates, fat and protein they contain. Sugar is highly concentrated food. Sugar is easily digested. On account of the rapidity with which it is assimilated, sugar quickly relieves fatigue. Six ounces of sugar are equal in food to 1 quart of milk, or 1¼ pounds of lean beef. It has a fuel value of 1,810 calories. Nuts are very high in food value, those used principally in manufacturing confectionery being almonds, filberts, pecans, peanuts and walnuts, averaging approximately 1,500 calories per pound. Corn syrup, erroneously called glucose, used largely in manufacturing gum drops, hard candies and taffies, is a pure wholesome transparent heavy syrup, manufactured from corn. The food value as expressed in scientific terms is 1,559 calories per pound.

Candy is composed of various raw materials of high food value; it is, therefore, apparent that candy being composed of combinations of two or more of these raw materials is exceptionally high in food value. With but three exceptions, the different kinds of candies are very much higher in fuel value than whole milk having a fuel value of only 315 calories per pound, cream 881 calories, whole eggs 695 calories, beefsteak 1,090 calories, corn 1,685 calories, rice 1,620 calories, white bread 1,180 calories, and corn bread 1,175 calories. The high nutritive value of chocolate candy is recognized by the leading military authorities of the world, and the "boys at the front" are satisfying their craving for "something sweet" with chocolate cakes and tablets and candies of various kinds. Scientists have demonstrated by careful experiments that during violent exercise or exhausting labor, the sugar in the blood is very heavily drawn on to supply the body with the necessary fuel, hence the longing for "something sweet"

which can be readily assimilated, and which is most easily and conveniently supplied in some form of candy. The Swiss guides for mountain climbers consider lump sugar and sweet chocolate an indispensable part of their outfit. Children should have candy frequently. It is better to give them candy frequently than to give only occasionally, when the craving for it creates an almost irresistible temptation to overeat. It is especially desirable that candy should be served for dessert. A moderate amount frequently is better than an occasional overindulgence.

Northwest Medicine, Seattle

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81 Naval Attitude Toward Venereal Disease Problem. C. F. Ely, Bremerton.—p. 225.
82 Relation of Military to Venereal Problems. I. L. McGlasson, Camp Lewis.—p. 229.
83 Control of Venereal Diseases in Army. A. H. Peacock, Camp Lewis.—p. 233.
84 Seattle's Experience with Quarantine and Treatment of Venereal Disease. J. S. McBride, Seattle.—p. 236.
85 Prostitution in Seattle. W. R. Jones, Seattle.—p. 239.

Ohio State Medical Journal, Columbus

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86 Cancer of Breast. J. H. Jacobson, Toledo.—p. 524.
87 Some Things Learned in Cataract Work. A. J. Timberman, Columbus.—p. 528.
88 Some Uses and Abuses of Pituitary Extract in Obstetrics. J. L. Bubis, Cleveland.—p. 532.
89 Dentist's Responsibility in Preventive Medicine. H. C. Brown, Columbus.—p. 533.

Rhode Island Medical Journal, Providence

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90 Nodular Syphilis. C. A. Simpson, Newport.—p. 131.
91 Recent Progress in Study of Certain Infections. A. M. Burgess, Providence.—p. 133.
92 State Hospital for Mental Diseases—Lantern Slides. A. H. Harrington, Howard.—p. 137.
93 Report of Meeting of State Secretaries in Chicago Regarding Medical Reserve Corps. J. W. Leech, Providence.—p. 139.
94 Case of Pott's Paraplegia Relieved by Spinal Bone Graft. R. Hammond, Providence.—p. 141.
95 Seminal Vesiculitis. H. Terry.—p. 143.

Social Hygiene, Baltimore

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96 Expression vs. Suppression. N. D. Baker, Washington, D. C.—p. 309.
97 Venereal Diseases in Army, Navy and Community. W. Lawrence.—p. 317.
98 War and Venereal Diseases Among Negroes. A. B. Spingarn.—p. 333.
99 Story of Committee of Fourteen of New York. J. P. Peters, New York.—p. 347.
100 Summary of New Public Health Measures for Combating Venereal Disease. G. Seymour.—p. 389.

United States Naval Medical Bulletin, Washington, D. C.

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101 Training of Pharmacist's Mates at Hampton Roads, Va. W. H. Halsey.—p. 7.
102 Hospital Corps Training School at San Francisco. P. F. Dickens.—p. 11.
103 Hospital Corps Training School, Newport, R. I. H. L. Ryan.—p. 16.
104 Training Hospital Corpsmen in Navy. J. B. Kauffman.—p. 19.
105 Hospital Corps Training School, Great Lakes, Ill. G. L. Crain.—p. 22.
106 Training Hospital Corpsmen at Civil Hospitals in New York. R. Martin.—p. 25.
107 Field Work with Eighth Regiment of Marines. G. A. Gray.—p. 28.
108 Training at Quantico and Guantanamo. B. E. Kirwan.—p. 29.
109 Oral Hygiene. H. J. Leonard.—p. 32.

West Virginia Medical Journal, Huntington

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110 Pathology, Symptoms and Diagnosis of Brain Abscess of Otitic Origin. H. R. Johnson, Fairmont.—p. 81.
111 Maternal Impressions. R. L. Brown, Parkersburg.—p. 86.
112 Co-Operation of General Practitioners, Sanitarium, and Patient in Fight Against Tuberculosis. S. A. Slater, Oil City, Pa.—p. 91.
113 Physician's Duty to His Community. H. B. Wood.—p. 97.
114 Pyelitis. H. G. Camper, Welch.—p. 101.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

July, 1918, **6**, No. 21

1 Case of Contusion of Axillary Artery. J. F. Dobson and W. R. Higgins.—p. 15.
2 Bone Growth and Bone Repair: Review. A. Keith.—p. 19.
3 *Bladder Injury in Warfare: Study of Fifty-Three Cases. A. Fullerton.—p. 24.
4 Ununited Fractures of Mandible; Incidence, Causation and Treatment. P. P. Cole.—p. 57.
5 Treatment of Gunshot Wounds of Face Accompanied by Extensive Destruction of Lower Lip and Mandible. V. H. Kazanjian and H. Burrows.—p. 74.
6 Results of Treatment in Two Hundred Cases of Injuries to Face and Jaws. W. M. Munby, A. A. Forty and A. D. Shefford.—p. 86.
7 *Primary and Delayed Suture of Gunshot Wounds. F. Fraser and others.—p. 92.
8 Acute Dilatation of Stomach. W. Doolin.—p. 125.
9 Case of Intestinal Obstruction; with Comments on Bursts of Intestine. R. Morison.—p. 135.
10 Rupture of Small Intestine into Mesentery, Result of Indirect Violence of Missile. H. Drummond.—p. 140.
11 Case of Subastragaloid Dislocation Reduced by Operation After Seven Weeks. S. A. Smith.—p. 144.
12 Case of Congenital Elevation of Scapula (Sprengel's Shoulder). R. M. de Mowbray.—p. 146.
13 Congenital Abnormality of Carpus. A. W. Connelly and H. A'Court.—p. 148.

3. **Bladder Injury in Warfare.**—Fullerton says that injuries of the bladder form a very small proportion of the total wounds reaching the base hospitals, one in 3,000 or 4,000. Their importance from the point of view of prognosis and treatment depends to a large extent on associated injuries. In the present series 35, or nearly 70 per cent., were complicated by injury to intestine or bone, or both. In 26 cases there was a wound of some part of the lower intestinal tract, and 13 of these were also complicated by osseous fracture. There were 19 cases of damage to the rectum. In 6 cases the small intestine was wounded. In 22 cases there was damage to the bones of the pelvic girdle. The pubic bone was fractured in 12 cases, once in association with the sacrum, once with the great trochanter, and once with the head of the femur, involving the hip joint. The sacrum was fractured in 5 cases; once in association with the pubic bone. The iliac bone was factured in 2 cases; once in association with the ischium. The ischium alone was fractured in one case. In 2 cases the coccyx was fractured. Damage to the prostate was present in 7 cases. The anterior crural nerve was injured in 1 case, the sciatic nerve in 2 cases, the femoral vein in 1 case, and the spine (concussion) in 1 case; involvement of the spermatic cord, necessitating orchidectomy, was present in 2 cases. According to Fullerton, the importance of the perivesical connective tissue cannot be overestimated. This forms a potential, continuous space extending from the cavum Retzii in front, round the sides of the bladder and rectum, to the posterior part of the latter behind. Pelvic cellulitis is a frequent complication.

The mortality of bladder injuries is very high, 13 deaths (over 24 per cent. in this series). In cases reaching the base it may be estimated at 30 per cent. The chief causes of death have been pelvic cellulitis, peritonitis, and sepsis. The chief sequelae are necrosis of bone, persistence of cystitis, calculus, and stricture at the neck of the bladder.

Fullerton points out that the treatment should be conducted on common sense lines. Accumulations of infected fluid, blood clot, and fecal material in the pelvic connective tissue must if possible be prevented by attention to the original wounds. If this is unsuccessful, suitably planned incisions should be made. The fact that urine flows over the surface of a wound is not necessarily in itself an indication for suprapubic cystostomy. If the bladder can be kept clean by irrigation, aseptic urine from the kidney does not appear to have a deleterious effect on the wound. Suprapubic cystostomy will drain an infected bladder, but will not prevent pelvic cellulitis and sepsis from occurring in the perivesical connective tissue and parietes, respectively. The after-treatment of the bladder by

frequent irrigation is necessary to get rid of cystitis and prevent calculus formation.

7. **Suture of Gunshot Wounds.**—Of the 303 cases entered on the research list, primary or subsequent suture of the wounds was actually carried out in 285. Three patients died, a mortality of about 1 per cent. Comparison of results of the use of antiseptics showed that among 41 cases of primary suture, primary union (complete or partial) occurred in 37 with failures in 4 cases. With a few exceptions, only the slighter wounds have been treated without antiseptics, and this may account for the results without antiseptics being the best (90 per cent. of successes). As regards immediate suture, flavine and ether come next (86 and 84 per cent. of successes), then soap and bismuth iodoform petrolatum paste (about 76 per cent.).

Regarding delayed suture, the figures, so far as they go, show a decided superiority over the results given by immediate suture. Of 224 wounds sutured primarily, cultures were made in 215. Of the latter, 21 were negative; all these healed completely by first intention. The remaining 194 were infected with anaerobes, streptococci, or other organisms mentioned in the bacteriologists' report. In the 194 infected wounds treated by immediate suture, anaerobes occurred in 119, nonhemolytic streptococci in 62, hemolytic streptococci in 20 and other organisms in 95.

The general conclusion drawn from these figures by the committee is that wounds infected by the hemolytic streptococcus nearly always become septic, while a large proportion of wounds infected in other ways healed by first intention. Failure took place in only one case of primary suture which was infected by anaerobes alone; in this case a muscle flap used for filling a bone cavity sloughed and a gaseous abscess developed in the wound. Only one case infected by hemolytic streptococci (a small wound penetrating the knee joint without damage to bone) healed by first intention; all the rest suppurated, many of them violently and with severe constitutional disturbance. Infections by nonhemolytic streptococci as a general rule appear to be less virulent. When failure occurs, the suppuration is usually milder than that characteristic of the hemolytic streptococcus. Sometimes, however, the nonhemolytic streptococcus, in association with other organisms, appears to set up sepsis of a very severe type.

The advantage which delayed suture offers as compared with immediate suture depends on the knowledge of virulent infection gained during the interval while the wound is open. Even if a bacteriologic examination has not been made, the appearance of a virulently infected wound when first dressed, forty-eight or seventy-two hours after operation, is usually distinctive, and it is not sutured. In this way the proportion of failures after delayed suture should be reduced to a very small percentage. While no antiseptic tried by the committee either in open or closed wounds, appears to have any appreciable effect on the growth of the hemolytic streptococcus, the results of the use of flavine point to the probability that chemical antiseptics, when applied to the surface of open wounds infected with bacteria of less virulence, may fulfil a useful function.

It was found advisable to discontinue the use of flavine solution after four or five days, as wounds treated continuously with this substance for longer periods tend to become covered with a layer of coagulated lymph or necrosed tissue in which bacterial growth appears to flourish. Used in the early stages for a limited time, flavine gives satisfactory results.

The committee found that the narrow track of a bullet which has passed into or through a limb, without producing an explosive effect by spinning or striking a bone, is usually sterile, and that operation on wounds of this type is unnecessary. Further, they found that where the entry wound and part of the track are clean and narrow, while the exit is lacerated, only the exit wound is likely to be infected. In such a case operation should be limited to a careful cleansing of the exit wound, damaged tissue being removed only till the orifice of the narrow track is exposed. A culture taken by introducing a swab into the latter will probably be negative, and this part of the wound need not be interfered with.

British Medical Journal, London

Aug. 17, 1918, **2**, No. 3007

14 *Ischemic Myositis. J. P. Stewart.—p. 151.
15 *Cases of Subacute Bacterial Endocarditis. H. J. Starling.—p. 154.
16 Attempt to Breed Tubercle Immune Cattle. L. J. Picton.—p. 157.
17 *Modification of Stokes-Gritti Amputation. W. A. Chapple.—p. 158.
18 *An Acid-Fast Bacillus Obtained from Pustular Eruption. L. Cobbett.—p. 158.

14. **Ischemic Myositis.**—Stewart advises treating this class of case by means of a careful and systematic stretching of the shortened tissues as recommended by Sir Robert Jones.

15. **Subacute Bacterial Endocarditis.**—Starling reports five cases. Particular attention is directed to certain symptoms. 1. Ephemeral spots of painful nodular erythema which were noted in two cases and had recurred for some months (at least six months in one case) before admission to the hospital. The patients paid less attention to the spots than to the fact that their finger-tips were on occasions tender when handling anything. Two patients stated that some days after all the tenderness and swelling had disappeared they were able to pick the so-called scab off the fingers. In one case a node appeared on the pinna of the left ear. 2. Petechiae were seen in all the cases in varying degrees and at different times. In two cases they occurred in showers, being scattered freely over the chest, abdomen and thighs. 3. Splenic enlargement was present in all the patients on or soon after admission to this hospital. The degree of enlargement varied with and in each case. 4. In no case was the pyrexia severe. 5. In four cases was demonstrated the occurrence of arterial embolism in a degree which is most unusual and worthy of record: (1) at the bifurcation of the left brachial artery; (2) at a branch of one of the left retinal arteries; (3) (*a*) in the right radial artery at the wrist; (*b*) in the left popliteal artery in the bend of the knee joint; (*c*) in a branch of the left suprascapular artery; (4) (*a*) in the left femoral artery; (*b*) in the left posterior tibial artery, in both instances before admission to this hospital; (*c*) at the junction of the right axillary and brachial arteries. 6. Hematuria was not marked in any of these cases.

17. **Modification of Stokes-Gritti Amputation.**—Chapple cuts the quadriceps attachment to the upper edge of the patella completely across, and then stitches the margins of the patella with catgut to the edge of the periosteum round the end of the femur. One or two additional deep catgut sutures will usually be sufficient, and a firm button suture through the skin flaps will make assurance doubly sure.

18. **Acid-Fast Bacillus Obtained from Pustular Eruption.**—The bacillus was cultivated by Cobbett from chronic intractable pustules covering the back, buttocks, and thigh of a soldier returned from France. No micro-organisms were seen in the pus, and none could, at first, be cultivated from it. But subsequently there was grown, on more than one occasion, an acid-fast bacillus which is the subject of this note.

Journal of Laryngology, Rhinology and Otology, London

August, 1918, **33**, No. 8

19 Two Years Intubation Followed by Tracheal Fistula. E. Mayer.—p. 225.
20 Report for Years 1916-1917 from Ear and Throat Department, Royal Infirmary, Edinburgh. T. Ewing.—p. 227.
21 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 234. To be continued.
22 An Apparent Cure of Endothelioma or Sarcoma of Trachea with Radium Emanations. B. S. Jones.—p. 242.

Journal of State Medicine, London

August, 1918, **26**, No. 8

23 Effects of War as Shown in Vital Statistics. B. Mallet.—p. 225.
24 Constructive Suggestions in Regard to Proposed Ministry of Health. E. W. Hope.—p. 248.

Journal of Tropical Medicine and Hygiene, London

Aug. 15, 1918, **21**, No. 16

25 *Treatment of Malignant Malaria in East Africa. M. Roche.—p. 165.

25. **Treatment of Malaria in East Africa.**—African malignant malaria has been completely eradicated quickly and easily by means of intramuscular injections of quinin spread over a month. Sixty grains of quinin bihydrochlorid were given by eight injections, each of 7½ grains. Roche says that about 80 per cent. of cases of cerebral malaria can be cured by quinin if it is energetically injected into the muscles and the rectum. The remaining cases are usually both unconscious on admission and of fatal termination.

Lancet, London

Aug. 17, 1918, **2**, No. 4955

26 Celiac Disease. G. F. Still.—p. 193.
27 *Treatment of Cases of Shell Shock in Advanced Neurologic Center. W. Brown.—p. 197.
28 Differential Diagnosis of Dysenteries. J. G. Willmore and C. H. Shearman.—p. 200.
29 Recent Epidemic of Smallpox in Field. G. H. Mead.—p. 206.

27. **Treatment of Shell Shock.**—In two series of 1,000 cases each Brown treated 173 in the first, and 132 in the second by means of hypnosis. In these two series there were altogether 121 cases of loss of speech, or hysterical mutism. He succeeded in curing every single one of these cases. Many of the patients were deaf as well as dumb. These were given a paper of instructions to read, in which they were told to lie down, close their eyes, and give themselves up to sleep. When such a patient showed by the calm look on his face that he had reached a quiet frame of mind, Brown would suddenly and unexpectedly bang two books together near him, and have the pleasure of seeing his eyes flicker, and then find that he could hear. Brown could then continue the treatment by word of mouth in the ordinary way.

Brown is convinced that the essential therapeutic agent in the case of hysteria caused by shell shock is "abreaction," or the working off of the repressed emotion caused by the shock. Mental analysis is a means to this end, and light hypnosis, applied under proper safeguards, is the quickest and most effective method of effecting this analysis, in cases in which amnesia is present and the patient is seen early. For cases of neurasthenia, which are the more numerous and involve emotional preoccupation often dating back many years, mental analysis and reeducation, without hypnosis in any form, are the needful agents, although the abreaction of the original emotional disturbance or disturbances is again essential. In both classes of cases the arousing of sthenic emotion in the patient's mind is an important adjunct in the cure, both in the form of enthusiastic confidence in his physician and expectation of a complete recovery, and also in the form of vivid interest in some form of occupation in the stage of convalescence, during which the mind becomes more unified and consolidated.

Rest, is, of course, also fundamental. But no complete rest is possible while the mind is obsessed with bottled-up emotion. This emotion must be completely worked off, and then true rest will come. The preoccupations of the neurasthenic also must first be dealt with if any form of rest cure is to produce good results. After three and a half years of work with nerve patients in military hospitals in Egypt, England and France, during which over 4,000 cases have passed through his hands, Brown feels no hesitation in saying that mental analysis is the ideal method of treatment, provided that it is carried far enough to produce true abreaction of emotional states.

Medical Journal of Australia, Sydney

July 30, 1918, **2**, No. 3.

30 Surgical Importance of Interscapular Gland. H. C. R. Darling.—p. 45.
31 Treatment of War Wounds of Knee Joint at Base in France. W. G. D. Upjohn.—p. 50. To be continued.

Aug. 3, 1918, **2**, No. 5

32 *Early Recognition of Feeblemindedness and Other Forms of Social Inefficiency. R. J. A. Berry and S. D. Porteus.—p. 87.
33 Treatment of Bone and Joint Wounds. L. G. Teece.—p. 91.

32. **Early Recognition of Feeblemindedness.**—As the result of a prolonged research, Berry and Porteus publish what they believe is a practical method for the early recognition of feeblemindedness and other forms of social inefficiency: (1) The person's brain capacity is first ascertained, and is compared with the percentile brain capacity of the population. This examination is supplemented by physical and psychophysical tests proved to have diagnostic significance. (2) A psychologic examination is then carried out as thoroughly as possible. The authors do not depend on the application of any single set of intelligence tests, but on a combination of methods. (3) Finally, the whole examination is correlated with the clinical, personal, family and educational history of the person, and the results interpreted in the light of the person's social environment.

The hypothesis on which the authors base their work is, that, as mental development is conditioned by brain capacity, striking deviation from the normal in brain size will tend to be associated with mental abnormality. In order to determine the cubic capacity of brain of a normal living boy or girl, at different ages of their educational career, the authors examined some 10,000 children and university students, with control cases drawn from known abnormal sources. Next the range of variation from the mean was determined and how far, if at all, extremes in this range were to be regarded as abnormal. For the former Berry and Porteus have employed the standard deviation and other well known statistical methods of mathematical science. For the latter they made use of Sir Francis Galton's method of percentiles, and the standard deviation as a unit of possible abnormality.

A table of percentiles was constructed from the results of these findings. Certain facts of importance in the early recognition of feeblemindedness and other forms of social inefficiency are clearly revealed. These are: (1) That head measurement alone is, and must always be, an uncertain guide as a measure of intellect or its lack. (2) That, as mental development is entirely dependent on brain matter, striking deviation from the normal in brain size tends to be associated with mental abnormality. (3) That when this deviation attains a certain sufficiently high degree, it must be revealed by head measurement and the calculation therefrom of brain size. (4) That such cases of striking deviation are due, in many instances, to developmental failure of the outer, supragranular, or "intellectual" layer of the cerebral cortex, and as this necessarily means a greatly diminished number of myelinated neurones, there will be a smaller sized brain, which head measurement, even in its present imperfect stage, is capable of detecting. Hence, small headedness will be of more diagnostic significance than large headedness. (5) That the authors' percentile tables of brain capacity are distinct aids to the diagnosis of mental inefficiency, and afford a more certain basis for the psychologist to work on than has hitherto been the case, because they afford some clue to the relative development of the supragranular (educational) and infragranular (instinctive) layers of the cortex cerebri of the person.

Archives des Maladies du Cœur, etc., Paris

August, 1918, **11**, No. 8

34 *Clinical Forms of Malignant Endocarditis. H. Vaquez.—p. 337.
35 Heart Block with Transient Changes in the Ventricle Beat. P. D. White (Boston).—p. 352.
36 Heart Disease and Fitness for Service. J. Heitz.—p. 355.

34. **Malignant Endocarditis.**—Vaquez discusses the acute, subacute and protracted forms of vegetative endocarditis, saying that only the acute form is primary; the others are generally grafted on some old valvular lesion. The name *Streptococcus viridans* applied to the microbe of the protracted type is not a good one, as the green tint that surrounds the cultures is not a constant phenomenon, and there seems to be no reason for thus distinguishing the streptococcus of malig ..t endocarditis. In seven of his nine personal cases he found the streptococcus in the blood, but in the two others only the pneumococcus was found.

Archives Médicales Belges, Paris

June, 1918, **71**, No. 6

37 *Kinetic Plastics and Prostheses. M. Stassen.—p. 657; Theory. J. Vanghetti.—p. 663; Technic. Pellegrini.—p. 675.
38 *Kinetic Amputation. S. Pieri.—p. 688.
39 *Meningeal Reactions of Syphilis. B. Dujardin.—p. 706.
40 *War Neuropsychiatry. H. Hoven.—p. 721.

37. **Kinetic Plastics.**—The principle of adapting the stump after amputations to utilize all the muscular force left in the various muscles and tendons has been repeatedly described in these columns. A series of articles here describe the principle and technic for the plastic operations and likewise for the amputations, with examples of the various types and the results realized in motor functioning. Pellegrini lines the tunnel through the muscle by rolling into a tube a horizontal transverse strip of skin left attached at both ends. The tube thus formed is the bar over which the tendons or muscles are sutured to form a loop. The skin around is then sutured to cover the whole except at the attached ends of the skin tube. A steel hook coated with celluloid is run through the skin tube, and thus the motor force in the tendon or muscle loop can be imparted directly to the steel hook and from this to the prosthesis. A man amputated in the forearm is shown holding a pail, a valise, a carafe, and writing with the artificial hand, all under motor control. The whole kinetic operaton can be done at one sitting.

38. **Amputations for Kinetic Prostheses.**—Pieri emphasizes the necessity for bearing the later kinetic plastics in mind when amputating. The best motor functioning is realized with the free loop; for the forearm, a double loop, one for extension and one for flexion. An ample supply of sound skin is of the greatest importance not only to line the tunnels but also to cover the outside of the loop, the portion most exposed to trauma. His illustrations show the technic for the various amputations to fulfil these conditions. The *Archives* thus brings the whole subject of kinetic plastics down to date, with twenty-five illustrations.

39. **Meningeal Reactions in Syphilis.**—Dujardin has had occasion to do lumbar puncture on a large number of syphilitics before, during and after treatment. For about two weeks after the syphilitic chancre no appreciable reaction in the cerebrospinal fluid is apparent. Then as the spirochetes enter the blood, the sensitive meninges respond to the irritation with slight lymphocytosis while the skin shows as yet no sign of irritation. As the septicemia progresses, the spirochetes proliferate in the skin foci. Not until several weeks later do they proliferate in the meninges; by this time the organism has become relatively immunized against the spirochete, and this explains the comparative mildness of the meningeal and nervous phenomena. The ephemeral character and the fluctuations in this immunization explain the play of subsequent recurrences. For instance, arsenical treatment destroying the more accessible skin foci, puts an end to the vaccination, and if the arsenical treatment is stopped too soon, the result may be renewed proliferation of the spirochetes in the meningeal foci. An inadequate course of arsenical treatment may thus entail a violent meningeal reaction. On the other hand, nothing is more encouraging than to watch the effect on the meningeal reactions of a properly conducted course of arsenical treatment.

40. **Shell Concussion.**—Hoven says in the conclusion of his review of the present status of war neuropsychiatry, that the prognosis of organic nervous disturbances from shell concussion is grave; their evolution is always long. But all the other disturbances rapidly subside.

Archives de Médecine des Enfants, Paris

August, 1918, **21**, No. 8

41 *Desquamating Erythrodermia in Infants. J. Comby.—p. 393.
42 *General Paralysis from Inherited Syphilis. J. S. de Sousa.—p. 425.
43 Chloroma. J. Comby.—p. 427.

41. **Desquamating Erythrodermia in Infants.**—Comby has encountered generalized exfoliating dermatitis in thirty newborn infants in the last few years. They were usually well developed and no defects in hygiene could be incriminated in the majority. It develops early, never later than two months, but it has certain analogies with the eczema rubrum of older children. The epidermis drops off in large flakes as with scarlet fever or burns of the second degree. There are no grave general symptoms, no blistering or suppuration unless ill advised medication induces irritation. Seborrhea of the scalp generally accompanies it and persists after it. Under dry powdering the dermatitis soon subsides.

42. **General Paresis with Inherited Syphilis.**—Sousa's patient is a boy of 7 who was apparently healthy till the age of 5.

Bulletin de l'Académie de Médecine, Paris

July 30, 1918, **80**, No. 30

44 *Emotion and Commotion. Dupré and Logre.—p. 124.
45 *Automatic Regulator for Carrel Treatment. Daure.—p. 134.
46 Three-Day Fever on Hospital Ship. P. Joly and Baril.—p. 138.
47 *Serum Treatment of Epizootic Lymphangitis. P. Latour.—p. 141.

44. **Shell Concussion.**—Dupré concludes his study of the *syndrome commotionel* by emphasizing the analogy between its symptoms, from the initial unconsciousness to the tardy changes in character and in the capacity for resistance and effort, and the symptoms to which we are accustomed with an apoplectic stroke. The latter may be regarded as a *syndrome commotionel* of internal origin, while the shell shock is the result of similar sudden disturbance in the circulation of external origin. The physical commotion induces apoplectic coma, while an emotional shock sets in play the defensive motor reactions of the instinct of self preservation, but repeated emotional shocks may lead to nervous exhaustion by a kind of emotive anaphylaxis. A violent shell concussion as well as an intense emotional stress may lead to a grave psychopathic condition of delirious nature, chronic and tending to dementia. In several instances he has witnessed a catatonic or hebephrenic psychosis, characteristic and incurable, develop at once after a shell concussion or after intense emotional stress.

45. **Automatic Regulator for Irrigation.**—Daure interposes in the supply tube a reservoir which automatically tips up when a certain amount of fluid has dripped into it. When the reservoir contains the desired amount (gaged with precision) it tips over and pours the fluid into the tube below. The contrivance was devised for Carrel treatment, which is now being applied to mastoid cases, but it may prove useful also in other fields.

47. **Epizootic Lymphangitis.**—Latour relates that great ravages are being caused among the army horses by contagious lymphangitis imported by the African contingents. No treatment proved effectual until the serum from convalescent horses was administered by subcutaneous injection. The results were excellent, he says, in the twenty-eight horses given this treatment. Some of the horses were given daily injections of 10 or 20 c.c. but the best results were obtained with massive doses, 100 c.c., at four or five day intervals. The second injection was followed by marked improvement and the cure was complete as a rule after the fourth or fifth. Twenty-four of the twenty-eight horses resumed their service in from three to six weeks, while with all other treatment the disease dragged along for three or four months.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 17, 1918, **42**, No. 17

48 *Lethargic Encephalitis. Alfred-Khoury.—p. 455.
49 *Primary Poliomesocephalitis with Narcolepsy. De Saint-Martin and J. Lhermitte.—p. 457.
50 Febrile Nervous Form of Epidemic Influenza. A. Chauffard.—p. 462.
51 *Orchi-Epididymitis. G. Faroy.—p. 465.
52 Oculomotor Reflex with Orbital Tumor. Rouquier.—p. 467.

48. **Lethargic Encephalitis.**—Khoury reports a case in a man of 55, distinguished by attacks of jacksonian epilepsy. The somnolency was the only symptom for a week, then came fever, bilateral ptosis, strabismus, retention of urine, and convulsions on one side. The urine and spinal fluid seemed approximately normal till death the twenty-third day. In the discussion that followed, four similar cases were mentioned, all of recent date, the fever not appearing for a week or ten days.

49. **Primary Poliomesocephalitis with Narcolepsy.**—De Saint-Martin and Lhermitte report two cases in which headache and invincible somnolence for a few days were followed by diplopia and ptosis. The bilateral paralysis of the third pair was complete, involving not only the external ocular muscles

but the musculature of the iris, with paralysis of accommodation and the light reflex, but no signs of involvement of other nerves or the cerebellum. They define the cases as primary superior poliencephalitis, and regard them as the same disease which Chauffard and others have been reporting and calling lethargic encephalitis. They think this name should be reserved for sleeping sickness. In the district in central France where they encountered the two cases reported, an epizootic is prevailing among poultry almost in endemic form.

51. **Orchi-Epididymitis.**—In one of the two cases described the orchi-epididymitis developed during convalescence from mild colon bacillus sepsis and in the other during convalescence from typhoid. It proved transient in the first case, but has persisted in the other during the nine years to date.

Journal de Chirurgie, Paris

June, 1918, **14**, No. 5

53 *War Wounds of Vessels. J. Okinczyc.—p. 441.
54 *Appendicostomy in Treatment of Acute Dysentery. G. Cotte.—p. 463.

53. **War Wounds of Blood Vessels.**—Okinczyc discusses the immediate hemorrhages and diffuse hematomas, the secondary hemorrhages and the tardy disturbances in the form of aneurysms. Among 220 wounded, 24.7 per cent. had one or more large blood vessels injured. When they do not bleed at once, the injury is liable to be overlooked, and he emphasizes the importance of seeking involvement of the vessels in war wounds as a routine practice. The traject of the projectile, roentgenoscopy revealing a projectile near a vessel, and spontaneous or induced pain in the course of a vessel are all instructive. This pain localized in the wounded vessel, sometimes extending to the whole limb, is the more remarkable, he says, because war wounds, aside from fractures, are generally only slightly painful at first. One man, for instance, had eight or ten wounds on the legs, buttocks and lumbar region. The left thigh seemed to have escaped as there was no trace of a projectile having entered. But the man complained of pain in this thigh alone, pointing to a spot over the femoral artery. On the basis of this pain, Okinczyc cut down to the artery and found that it had been grazed by a projectile on its way downward, and there was thrombosis for 2 cm. The discouraging frequency of gangrene after ligatures has compelled him to look about for other procedures.

54. **Appendicostomy in Dysentery.**—Cotte has applied this method of treatment in five grave cases of acute dysentery, and the results were so fine that he thinks it deserves wide adoption. He cut off the appendix, leaving only enough of a stump to hold the catheter. The cecum was fastened with four silk stitches to the parietal peritoneum. The latter was sutured except for the catheter. General anesthesia is necessary; in the one case done under local anesthesia, the cecum and colon had slipped entirely out of sight and could not be found without manipulations which the debilitated patient would have been unable to stand. Cotte used always a 1 per thousand solution of silver nitrate, repeating the lavage every day or second day until the stools were formed.

Lyon Chirurgical

March-April, 1918, **15**, No. 2

55 *Experimental Study of Healing of Nerves. J. Nageotte.—p. 245.
56 The Circulatory Disturbances in Shock. H. Delaunay.—p. 293.
57 *Lumbar Puncture in War Surgery. F. Albert.—p. 328.

55. **The Healing of a Severed Nerve.**—Nageotte's account of his extensive experimental research is profusely illustrated. Among the conclusions is the statement that the interposition of a nerve graft—in dogs—aids in the regeneration so that healing may proceed perfectly, with complete restoration of function. The nerve graft was kept in alcohol (50 degrees). The young nerve fibers are attracted into narrow interstices, and this stereotropism is favored by providing the regenerating nerve with a graft of easily permeable tissue, with longitudinal interstices. A graft from a rabbit nerve is best adapted for the purpose, but as this is so small, he preferred a nerve graft from a calf fetus. This dead heteroplastic nerve graft gave perfect results in some of the dogs. He thinks that these findings might apply to human beings, but the graft would have to be made early. In old wounds, changes in the stumps of the nerves would render any intervention futile.

57. **Lumbar Puncture with Skull Wounds.**—Albert expatiates on the advantages of lumbar puncture in surgery of the skull. It differentiates simple meningeal irritation from local compression of the cortex, and simple hernia of the brain from hernia caused by an inflammatory process below. With the latter, the hernia does not collapse even after repeated lumbar puncture. The latter is indicated in treatment of concussion of the brain, fracture of the base of the skull, and for all cases of irritation of the cortex with increased secretion. He reiterates that when the condition is not improved by lumbar puncture, some serious injury may be assumed, calling for cranicctomy. Among the fifteen cases described to illustrate the benefit in these various conditions, are four of post-traumatic meningitis.

Paris Médical

July 6, 1918, **8**, No. 27

58 *Headache after Shell Concussion. A. Mairet and H. Piéron.—p. 1.
59 Persisting Functional Disability. Laignel-Lavastine.—p. 7.
60 Lead Meningitis. P. Lereboullet and J. Mouzon.—p. 12.
61 Goose Flesh Reactions to War Wounds. Andre-Thomas.—p. 16.
62 Traumatic Cerebral Hemorrhage. Chavigny.—p. 28.
63 Discharge for Insanity in Soldiers. R. Benon.—p. 29.

58. **Headache After Shell Concussion.**—Mairet and Piéron call attention to symptoms indicating irritation of the trigeminal nerve after a shell concussion. There probably are minute suffusions of blood responsible for the irritation. The latter induces headache and tenderness along the nerve, and this sign of trigemino-occipital irritation is objective testimony to the concussion. Pressure on the emerging point of the nerve, especially above the orbit, causes pain which spreads to the back of the head, along the course of the great occipital nerve.

Presse Médicale, Paris

Aug. 1, 1918, **26**, No. 43

64 *War Wounds with Streptococci. Plisson, L. Ramond and J. Pernet.—p. 393.
65 Primary Reunion of War Wounds. Ehrenpreis.—p. 395.

Aug. 5, 1918, **26**, No. 44

66 *Serotherapy and the Myth of Anaphylaxis. Jousset.—p. 401.
67 *Tardy Effects of Concussion. A. Léri.—p. 403.
68 *Mixed Anesthesia. J. Pellot.—p. 405.
69 *Resection of Hip Joint. P. Chutro.—p. 406.
70 *Action of Epinephrin on Gastro-Intestinal Tract. L. Binet.—p. 407.
71 Local Anesthesia for the Eye and Orbit. Duverger.—p. 408.

64. **The Streptococcus in War Wounds.**—Plisson, Ramond and Pernet remark that streptococcus war wounds constitute at present an entirely new morbid entity, as they are set apart from all other war wounds, primary suture being forbidden them. The course of sixty-seven war wounds containing streptococci is reviewed here. They all are in chains and take the Gram, but otherwise they differ so widely that it is always a question as to the unity or plurality of streptococci, but all forms seem to be equally dangerous in war wounds. They induce an infection like an actual erysipelas of the walls of the wound, against which the organism vaccinates itself only slowly and tardily. It takes weeks for a streptococcus wound to heal up, but a fatal termination is exceptional. After the danger of gas gangrene is past, the prognosis is not grave for the man himself, but it is grave for the state, as he is kept suppurating for months, and the army thus loses his services. No method of disinfection to date has proved effectual against the streptococcus, but the progress of the wound can be hastened by secondary operative measures, Thiersch flaps or exsection, as for a tumor, of a wall of tissue, including the whole of the wound and 2 or 3 mm. beyond its edges and its bottom, which one avoids touching during the operation; strict hemostasis; primary suture with filiform drainage at each end. These secondary operations were never done before the third week, by which time the organism had evidently acquired a certain amount of immunity in respect to the streptococcus. No antiserums or colloidal metals, etc., ever displayed any efficacy; the reliance must be

on the organism itself to accomplish its own vaccination. Prophylaxis is the main thing. Segregation of all the streptococcus cases is important, but the best guarantee against streptococcus infection is the early and minute *épluchage* of the wounds.

66. **Serotherapy and the Myth of Anaphylaxis from It.**—Summarized, August 17, p. 605, when published elsewhere.

67. **Tardy Effects of Concussion.**—Léri refers to cases in which the focal lesions in the nerve centers from the concussion from a shell explosion did not develop until several days or weeks afterward. By that time the connection with the shell concussion is apt to be overlooked or unrecognized, and the nervous disturbance, paralysis, hemiplegia, etc., are liable to be mistaken for hysterotraumatism, etc. Among the various types of these *commotions retardées* are the forms with generalized muscular atrophy, aphasia, hemiplegia or amyotrophic paralysis of the quadriplegic type. The prognosis of these tardy manifestations seems to be far more favorable than for those that develop at once. Nearly all the men whose stories are related had recovered more or less completely in the course of a few months to a year. The fact that these organic lesions in the spinal cord or brain may not reveal themselves for several days or weeks or months is important from the medicomilitary standpoint. The acquired fragility of the vessels in the brain and spinal cord of men who have suffered a concussion of this kind should be borne in mind in the estimation of focal lesions which develop later. Léri adds that the question of *amyotrophies post-commotionelles* has not been brought up before. The very slow and progressive development of the muscular atrophy has prevented its real cause from being discovered.

68. **Mixed Anesthesia.**—Pellot has devised an apparatus with which 15 parts ethyl chlorid are given with 3 parts of ether and 2 parts of chloroform; 20 c.c. of the mixture insures complete anesthesia for twenty minutes. He claims for it all the advantages of pure ethyl chlorid with none of its disadvantages.

69. **Resection of Hip Joint.**—Chutro describes with illustrations a method of operating in case of grave infection of a war wound of the hip. The oblique osteotomy of the neck of the femur permits good drainage while retaining the upper surface of the neck its entire length; and retaining the capsular muff intact. The wound is drained with six or eight Carrel tubes. In his nine cases the whole intervention took only ten minutes, and the hip joint was left functionally capable with an average shortening of only 3 cm.

70. **Action of Epinephrin on Digestive Tract.**—Binet's review of the literature demonstrates that epinephrin has an undoubted modifying action on the vascularization, secretion and motor functioning of the digestive tract. Introduced directly into the stomach, epinephrin does not seem to display any toxic action. But introduced into the rectum, it proves very toxic in doses similar to those that are lethal for the animals when injected subcutaneously. He ascribes this to the close anastomoses between the hemorrhoidal veins and the portal vein, the liver being apparently the barrier which arrests the epinephrin ingested. Neither pepsin nor trypsin nor passage through intestinal capillaries seems to alter the epinephrin ingested. On the other hand, digestive disturbances from suprarenal insufficiency are known. These and other data learned from experimental research are useful, he says, to guide the physician. They are instructively supplemented by Grasset's case in which 35 gm. of 1 per thousand solution of epinephrin was swallowed with suicidal intent, without appreciable results.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 10, 1918, **48**, No. 32

72 *The Influenza Epidemic. R. Staehelin.—p. 1057.
73 Present Status of Tuberculosis. O. Amrein.—p. 1060.
74 Cancer Statistics. Labhardt.—p. 1066; J. Aebly.—p. 1069.
75 *The Osmotic Pressure in the Serum in Typhoid. A. E. Alder.—p. 1072.

72. **The Influenza Epidemic.**—Staehelin writes from Basel that the prevailing epidemic resembles in every respect the pandemic of influenza in 1889 only that it is apparently more malignant. The influenza bacilli have been cultivated from blood and sputum in different localities, and pneumonia seems to be a frequent manifestation; forty-six of the 309 cases in his service in about six weeks terminated fatally. Leukopeny seems to be constant in the more serious cases, and an eruption resembling that of scarlet fever is common. He isolates the sick as for diphtheria, and there has been no ward contagion but two of the attending physicians, seven nurses and four attendants in contact with the sick have had the disease. The salicylates reduced the temperature temporarily and camphor proved useful in pneumonia, especially with venesection when the latter was indicated.

75. **Freezing Point of Blood Serum in Diagnosis of Typhoid.**—Alder investigated the osmotic pressure in the blood serum of twelve typhoid patients and tabulates these and the metabolic findings, as also in four other patients whose disease proved not to be typhoid. In 75 per cent. of the typhoid cases the osmotic pressure in the serum was found decidedly reduced at the very beginning and through the height of the disease. In the others it fluctuated. He suggests that this early reduction in the osmotic pressure as shown by the freezing point may prove useful in the very early differential diagnosis of typhoid.

Annali di Ostetricia e Ginecologia, Milan

February, 1917, **19**, No. 2, Pub'd, August

76 *Obstetric Ureter-Bladder-Vaginal Fistulas. A. Bertino.—p. 41.
77 *Pregnancy Chorea. S. Flamma.—p. 69.

76. **Obstetric Lacerations.**—Bertino reports a case in which there was both a vesicovaginal fistula and a fistula between ureter and vagina. The latter was not discovered until the persisting drizzling of urine after the first fistula had been corrected led to its discovery. Both fistulas were evidently the result of simultaneous injury during delivery at term with a moderately contracted pelvis, probably when the fetal head was being rotated. A functional cure was realized by implanting the ureter in the bladder wall by an extraperitoneal technic.

77. **Pregnancy Chorea.**—Flamma's patient was a woman of 21 and the chorea developed at the third month of her first pregnancy. The chorea growing worse was accepted as an indication to arrest the pregnancy, after which it gradually subsided. Becoming pregnant a year later the choreic movements recurred, commencing in the second month. The woman and her husband begged to have abortion done as the choreic movements were incessant and severe. Convinced that the trouble was principally of nervous origin, a sham obstetric intervention under chloroform anesthesia convinced the couple that the abortion had been done, and the chorea rapidly and completely disappeared. As the pregnancy approached term and the couple realized that their wishes for a child were to be gratified without the woman's suffering from the chorea, they were very much pleased. Flamma reviews the literature on chorea gravidarum. Chorea in childhood, hysteria, a fright or an inherited neurotic taint are frequently mentioned in the antecedents, but in some cases no factor could be incriminated except the pregnancy. He remarks that pregnancy chorea and chorea in the pregnant are not necessarily the same thing. The mortality of pregnancy chorea is given as 8.3 per cent. in one of the latest compilations. Sham interruption of the pregnancy proved effectual also in another case in the clinic in which the psychogenous manifestations took the form of incoercible vomiting. These twin cases with the same origin but different manifestations, cured by the same measure, confirm the conception of a psychogenous origin. Before inducing actual abortion in dubious cases of the kind, a sham intervention may answer the purpose.

Pediatria, Naples

August, 1918, **26**, No. 8

78 *Tuberculin Test in Measles. O. Cozzolino.—p. 449.
79 *Partial Wet Nursing. A. Borrino.—p. 457.
80 Torpor of Blood-Producing Organs. G. Milio.—p. 467.

78. **The Tuberculin Reactions in Measles.**—The veering from positive to negative in the response to the tuberculin

test during measles is ascribed by Cozzolino to the changes in the skin induced by the eruption.

79. **Supplementary Wet Nursing.**—Borrino refers to cases in which the mother's milk is absolutely inadequate or the breast is deformed, or the mother is severely ill. Under these conditions, instead of resorting to artificial feeding, she advocates securing the services of a woman living at home and nursing her own child, who will give the breast to the infant a few times during the day. Four typical cases are described in which very sick infants were thus tided along in good condition until the mother could nurse them adequately herself.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 27, 1918, **39**, No. 51

81 Relations between Functional Derangement in Internal Organs and the Suprarenals and Other Endocrine Glands. C. Amistani.—p. 505.
82 *Iodoform Treatment of Tuberculous Pleurisy and Peritonitis. M. Maurizi.—p. 507.

July 4, 1918, **39**, No. 53

83 Sulphur Ointments. L. Sabbatani.—p. 514.

July 7, 1918, **39**, No. 54

84 Reflex Nervous Disturbances. E. Greggio.—p. 521.
85 Bacteriology of the Blood with Three-Day Fever. I. Salvioli and M. Savini.—p. 524.
86 *Early Operations for War Wounds. G. Pisano.—p. 525.

82. **Iodoform Treatment of Tuberculous Pleuritis and Peritonitis.**—Maurizi reports excellent results from injection of a suspension of 2 or 4 gm. of iodoform in 10 or 20 gm. liquid petrolatum in treatment of tuberculous pleuritis. The iodin released slowly from the suspension kills the tubercle bacilli, and this in turn generates what amounts to an autotuberculin, while the absorption of the effusion is a kind of autoserotherapy. He begins with an exploratory puncture but does not remove the effusion unless it is in excessive amounts. There may be a febrile reaction which reaches its height next day and lasts from five to seven days. Generally one injection answers the purpose. He keeps the patient on milk exclusively as long as the reaction is apparent. Surgical treatment is necessary with staphylococcus or streptococcus empyema, but it is contraindicated for the tuberculous. It does not cure the primary process while it is liable to set up associated infection and entail an incurable fistula. Capparoni uses glycerin instead of liquid petrolatum, but Maurizi found the glycerin too irritating.

86. **Operating in Advanced Stations.**—Pisano recommends a small portable barrack with equipment for surgical work, which can be packed complete in two trucks and set up close to the front wherever needed. He has long been advocating operations close to the firing line to spare the wounded the strain of transportation.

Policlinico, Rome

Aug. 4, 1918, **25**, No. 31

87 *Fracture of Neck of Femur. C. Ghillini.—p. 725.
88 Salivary Concretions. P. Amorosi.—p. 729.

August, 1918, **25**, Medical Section No. **8**

89 *Osteoporosis after War Wounds. C. Guarini.—p. 225.
90 Appendicitis and Life Insurance. I. Romanelli.—p. 245.
91 Xylol in Treatment of Tuberculosis. G. Volpino, Colombino and Fornaroli.—p. 253.

87. **Fracture of Neck of Femur.**—Ghillini calls attention to the fact that as the patient with fractured femur reclines, the weight of the shaft drags down the distal stump of the neck so that it lies below the plane of the proximal stump. This of course prevents exact coaptation of the stump ends. It can be avoided, he says, by bracing the pelvis against some support, and then having the limb straightened by traction on the foot and leg. Measure the distance on the sound side from the anterior superior iliac spine to the greater trochanter, and the distance betwen these points on the side of the fracture. An assistant then, with one hand under the buttocks on the side of the fracture, raises the greater trochanter until the distance between it and the iliac spine measures the same as on the sound side. A strip of plaster is then applied passing from one side to the other of the thigh and leg, and made to adhere to the limb with strips of gauze. Then a cement and plaster cast is applied, enclosing the pelvis and reaching from the umbilicus to the knee. The assistant holds the limb in inward rotation while the plaster is hardening, which brings the fragments together. In his first case he worked under roentgen control, but found this superfluous, as the measurements alone answered every purpose. He applies extension by Volkmann's method, with a 5 or 10 kg. weight, keeping the stirrup fastened to the foot in inward rotation. The limb is thus immobilized for about fifty days. The fracture by this means heals in the correct anatomic relations. The only drawbacks with the method he found to be that others accused him of faking the roentgenograms of his cases, as no one would believe that such complete restoration of a fractured femur was possible. He reproduces four of them.

89. **Osteoporosis After War Wounds.**—Guarini relates how the roentgen rays showing osteoporosis after industrial accidents and war wounds have freed many persons from the stigma of simulation, as they revealed trophic changes in the bone responsible for the patient's complaints. The trouble may commence in from four weeks to four months after the injury. Osteoporosis is especially frequent after war wounds, and the early detection of the tendency is important from several standpoints. He suggests that the demineralization should be combated by dietetic measures, first making sure of normal conditions in the digestive tract. In some cases, organotherapy might also be considered. Electrotherapy and physical measures may improve the circulation in the limb and promote the nourishment of the periosteum and joint cartilage. Nineteen cases are described in detail, with illustrations. In one woman the lumbar spine was the seat of constant pains and tenderness, first explained by the osteoporosis revealed by the roentgen rays. Trophoneurotic influences after a war wound were evidently responsible in some cases. Guarini found a tendency to osteoporosis in from 25 to 50 per cent. of 3,500 roentgen examinations of the wounded. It was frequent in the small bones of the hand or foot after war wounds not far above, and in the elbow. Inflammation is evidently a factor, but long immobilization of the limb certainly cooperates.

Rivista di Clinica Pediatrica, Florence

August, 1918, **16**, No. 8

92 *Convulsions in Infants. C. Francioni.—p. 393.

92. **Convulsions in Infants.**—Francioni found that some of the infants under 3 months old who had convulsions developed afterward normally, some traumatic or circulatory disturbance from the birth process evidently having been responsible for the convulsions. In others, symptoms of spasmophilia became manifest later, or of inherited syphilis or of tuberculosis. Whatever the etiology, the convulsions were alike in all. It is manifest further that digestive disturbances may aid in bringing on convulsions with an inherited taint or from other cause, but the stage of the development of the nervous system evidently cooperates, before the third month and after the eighth month being the periods of greatest frequency of convulsions.

Gaceta Medica de Caracas, Venezuela

June 30, 1918, **25**, No. 12

93 Classification of a Distoma. J. M. R. Sierra.—p. 124.
94 *Chaulmoogra Oil in Treatment of Tuberculosis. J. G. Hernandez.—p. 127.
95 Pyrexias at Caracas. F. A. Risquez.—p. 128.

94. **Chaulmoogra Oil in Tuberculosis.**—Hernandez found that addition of 2 per cent. chaulmoogra oil to the culture medium always prevented development of tubercle bacilli. His experiments with it in guinea-pigs also seemed to confirm its destructive action on these bacilli. He gave small injections of the oil to six tuberculous patients. The best results were obtained with injection of not more than 1 or 2 c.c. at twenty or thirty days' interval. Under this all the symptoms subsided in some of the cases. In the discussion that followed, Rincones suggested that possibly this oil might render the waxy shell of the bacillus less resistant, so that then it might yield to serotherapy.

Revista de la Asociacion Medica Argentina, Buenos Aires

May, 1918, **28**, No. 162

96 Intestinal Lesions from Acquired Syphilis. Udaondo.—p. 375.
97 *Resection of Auriculotemporal Nerve in Treatment of Parotid Fistulas. A. Ceballos and A. G. Bacigalupo.—p. 395.
98 *History of Hygiene in Argentina. E. R. Coni.—p. 401. Cont'n.
99 *Antagonistic Action of Organ Extracts. B. A. Houssay.—p. 433.
100 Pancreatic Cysts. J. M. Jorge, Jr.—p. 440.
101 Gonococcus Peritonitis. R. A. Rivarola.—p. 478.
102 Polycystic Disease of Mammary Gland. N. Tagliavacche.—p. 484.

97. **Resection of Auriculotemporal Nerve in Treatment of Parotid Fistulas.**—The man of 36 was cured completely of a rebellious fistula into the parotid gland by resection of the auriculotemporal nerve to reduce the secretion of saliva. Similarly favorable results were obtained with this intervention also in two cases of cancer of the tongue and one of cancer of the esophagus. In the latter case the resection was bilateral. In all the cases there was immediate reduction in the flow of saliva but no other effects were apparent.

98. **History of Public Hygiene in Argentina.**—This is the fifteenth chapter of Coni's memoirs.

99. **Antagonistic Action of Pituitary and Suprarenal Extracts.**—Houssay presents charts and describes experiences which confirm that while pituitary extract usually reenforces and prolongs the action of epinephrin, on the bronchi, bowels and pupil it exerts an antogonistic action.

Revista de la Universidad de Buenos Aires

June-July, 1918, **38** and **39**, No. 136

103 *Ruptures of the Uterus. J. B. Gonzalez.—p. 161. Cont'n.
104 *Phlegmons of Broad Ligament. C. A. Castaño.—p. 219. Conc'n.

103. **Ruptures of the Uterus.**—The fifty-six pages of this instalment of Gonzalez' extensive thesis review the history and the literature on rupture of the uterus, and his own clinical experiences. Among 3,125 parturients in his service, rupture occurred in 1.91 per thousand of 1,562 Argentine women; in 2.83 per thousand among 707 women of Spanish race, and in 36.96 per thousand among 514 Italians, and yet contracted pelvis was relatively rare among the Italian women. Shoulder presentation was evidently a factor in the rupture in six of the Italian women.

104. **Pelvic Infections.**—Castaño gives here the minute details of his experimental work and research on the origin of and findings with phlegmon of the broad ligament, with thirty-three pages of bibliography, twenty-four fine photomicrographs and twenty-six handsome colored plates, besides other illustrations and thirty case histories, and the general conclusions as to the pathogenesis and pathologic anatomy of phlegmons of the broad ligament. A shorter communication by him on this subject was reviewed in these columns, July 13, 1918, p. 157, and his conclusions were there summarized.

Gann, Tokyo

July, 1918, **12**, No. 2

105 *Induced Cancroid in the Mouse. H. Tsutsui.—p. 17.
106 *Transplantation of Fowl Tumors. K. Yamamoto.—p. 22.
107 Tubal Embryoma. S. Ohno and H. Takaoka.—p. 24.

105. **Artificially Induced Tumors in Mice.**—Tsutsui applied to 259 mice Yamagiwa's method of inducing malignant proliferation of tissues by repeatedly painting them with coal tar. Only sixty-seven of the mice survived to the hundredth day, the others succumbing probably to intoxication from the tar as they licked the spot. A tumor developed in thirty-five of the sixty-seven surviving, that is, in 52 per cent. The microscope showed on continued application of the tar, carcinoma in sixteen and sarcoma in one of the animals, an average of 23.8 per cent. of the animals that lived more than 100 days. There is some chemical substance in the tar, he thinks, which must be incriminated in the development of the carcinomas, but mechanical injury must not be left out of account, as the spot of the application is often bitten by the animal, and there is further repeated irritation as the scar is lifted up for renewed painting with the tar.

106. **Transplantation of Fowl Tumors.**—Among the points brought out by Yamamoto's experiments with fifty-eight strains of fowl tumors and one of dog and of guinea-pig tumors, is that the arrest in the growth of a tumor and the resorption of an already completely developed tumor, and the failures in transplantation, must stand in some intimate connection with the sexual function of the animal in question.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 29, 1918, **1**, No. 26

108 *Puerperal Sepsis. A. A. H. Van den Bergh.—p. 1774.
109 Wind Shelter Tent for Sun Baths. C. M. Mol.—p. 1783.
110 Organization of Specialists. A. C. Van Bruggen.—p. 1784.

108. **Sulphemoglobinemia.**—Van den Bergh over ten years ago called attention to the presence of sulphemoglobin in the red corpuscles in certain cases. In a case recently encountered, the sulphemoglobinemia followed puerperal fever after a criminal abortion. The symptoms corresponded to those accompanying sepsis from anaerobic microbes. The skin turned a yellow or coppery color, while the nose, the fingers and toes and the mucosa looked blue. The scanty urine contained hemoglobin. Some of the women have recovered, but as a rule they die in a few days. The organs are found brownish, but the most striking finding is the apparent integrity of the sexual organs and peritoneum. In the case reported, the spectroscope showed lines typical for sulphemoglobin. It is possible that this has been mistaken for methemoglobin in some of the cases on record labeled methemoglobinemia. Methemoglobin is an ordinary derivative of hemoglobin, but sulphemoglobin is formed exclusively under the action of sulphuretted hydrogen. The discovery of sulphemoglobin in the blood will turn the scale in favor of sepsis rather than an intoxication. No one has succeeded in cultivating microbes from the blood in these cases. In the present case they had probably entered by way of the internal genitals but had not caused any local lesions. Proliferating in the blood, they attacked the hemoglobin.

Hospitalstidende, Copenhagen

July 10, 1918, **61**, No. 28

111 *Exophthalmic Goiter in Children. H. C. Gram.—p. 913.
112 *Micro-Tests for Iron. M. Claudius.—p. 930.
113 Present Status of Pyelography. F. Rydgaard.—p. 937. Cont'n.

111. **Exophthalmic Goiter in Children.**—Gram cites the literature on this subject, and especially in reference to the unusual growth in height in children with exophthalmic goiter. This disease is rare in children. Sattler could find records of only 184 children under 15 in 3,477 cases of exophthalmic goiter on record. At the same time it is not infrequent to encounter in girls approaching puberty some slight enlargement of the thyroid with mild nervous manifestations and tendency to tachycardia—evidently a pathologic exaggeration of the physiologic hyperthyroidism at this time. Holmgren in 1906 called attention to the excessive growth which occurs in these conditions. The growth seems to be whipped up, and the bones settle prematurely into a condition which normally would occur only four or five years later. The epiphyses become consolidated, so that growth has to cease after this spurt, the children not being exceptionally tall when they reach their majority. Gram here reports in detail three typical cases. The girls were harmoniously developed, with menstruation at 12. At 13, they were 13.5 and 10 cm. taller than the average for their age. There were no signs of acromegaly, unless this extra growth may be regarded as a lengthwise acromegaly.

112. **Micro-Tests for Iron.**—Claudius gives the details of a colorimetric and a titration micromethod for determination of iron in the blood or other fluid. The first is based on the transformation of the iron into soluble Berlin blue; the other on the combination of an iron oxid with soluble Berlin blue to form insoluble Berlin blue. An aqueous solution of Berlin blue is used for the color standard. The tint is proportional to the iron content; probably because the stain is a colloidal solution. Other colorimetric technics in vogue are unreliable as the stain becomes dissociated more and more into its colorless elements. This does not occur with a stain in colloidal solution. He comments on the importance of an exact micromethod for iron not only for chemistry in general but for clinical medicine. Only 0.10 c.c. of blood is required for either technic.

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Alcoholic Luetic Liver Extract and Amboceptors furnished. Wassermann Test. Autogenous Vaccines. Pathological Specimens examined. Intravenous Gravity Outfit.
GUINEA PIGS FOR SALE
Free Instructions how to do the Wassermann Test.

Operative Surgery

Special course in general surgery, operative technique and gynecologic surgery given to physicians. Enrolment limited to THREE.
First assistantship. No cadaver or dog-work.
For particulars address,
DR. MAX THOREK
AMERICAN HOSPITAL, 846-856 Irving Park Boulevard, CHICAGO

Business Opportunities

Advertisements under the following headings cost $2 for 30 words or less; additional words 5c each. This rate applies for each insertion.

WANTED	**Partner**	**Sanitaria**
Apparatus	Partnership	Drug Stores
Assistant	Situation	Locations for Sanit.
Books	**FOR SALE**	**FOR RENT**
Intern	Apparatus	**EXCHANGE**
Location	Practice	**MISCELLANEOUS**
Locum Tenens		

RESULTS are better when an advertisement receives several insertions, and to those who remit $8 ($8.25 if answers are to be sent through this office) for four consecutive insertions of a classified advertisement we will give, *free, two more insertions* provided the first four do not consummate a deal.

NOTICE FOR FREE INSERTIONS must be received after the fourth appearance of the advt. and within two weeks following. Requests with original order for such free insertions will not be considered.

COUNTING WORDS.—Two initials, each abbreviation, figures consisting of five numerals or less are counted as separate words. Headings, and name and address are part of advertisement. When answers are sent % AMA—the key, "Add—%AMA" is considered four words. Count words carefully. Write your copy plainly.

For the following classifications the rate is $2 for 20 words or less; additional words 10c each. This rate applies for each insertion. No gratuitous insertions given under these headings.

Abstracting	Medical Brokers	Med. Illustrators
Automobiles	Educational	Vacation Trips
Auto accessories	Publishers	Typewriters
Carriages	Tr. Sch. for Nurses	Printers
Collections	Nurses Wanted	Salesmen

Miscellaneous Commercial Advts.

SPECIAL NOTE—A fee of 25c. is charged advertisers who have answers sent % A.M.A. No information can be furnished on keyed advertisements. Do not wire or write us for an address; mail your letter placing key number on envelope and it will be promptly forwarded.

Classified Ads. are payable in advance. To avoid delay in publishing, remit with order

OVER 50% of the classified ads are keyed, answers being sent in care of The Journal; each week we transmit to advertisers over 500 replies.

Occasionally we receive notification from one who has answered an advertisement stating that he has had no reply and asking if his letter was transmitted. Letters sent in our care are forwarded promptly, but naturally we cannot compel an advertiser to answer all replies he receives.

It is advisable to send copies instead of original references.

For current issue, ad must reach us by 4:30 p. m. Monday.

Journal A.M.A., 535 N. Dearborn St., CHICAGO

N. B.—We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation.

ASSISTANTS WANTED

WANTED—ASSISTANT AND INTERN IN office and private hospital in central west; practice limited to eye, ear, nose and throat; $100 per month, with board and room; state full particulars, personal and professional, and send photo. Add. 4878 B, % AMA.

WANTED — ASSISTANT OR PARTNER— Must be exempt from draft; general practitioner and surgeon; tell all about yourself first letter; am expecting to enter army service and will put on salary or sell interest to responsible party; after entering army will turn over my practice during war and resume relation of partner or assistant after the war if party proves satisfactory; private hospital; splendid opportunity. Add. 4860 B, % AMA.

WANTED — ASSISTANT PHYSICIAN, draft exempt, general mining contract practice, Minnesota; live, modern town 10,000; excellent schools; initial salary $200 for first two months; after that, $225 and up; no extras. Add. 4889 B, % AMA.

WANTED—AN ASSISTANT IN A WEST Virginia coal mining practice; single man exempt from draft desired; salary $100 per month, board, room and drugs furnished; also obstetric fees extra. J. P. Alkire, M.D., Everson, W. Va. B

WANTED — ASSISTANT PHYSICIAN, Athens State Hospital; married or single; draft exempt; salary according to hospital experience, with maintenance. Dr. O. O. Fordyce, Superintendent, Athens, Ohio. B

(Continued on next page)